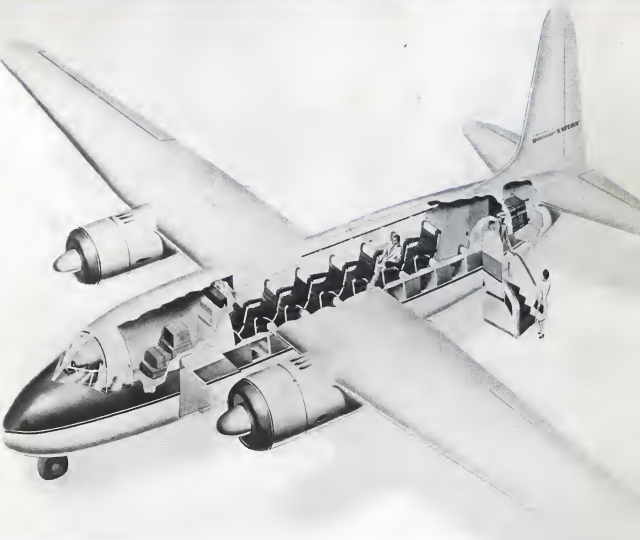


Aviation News

McGraw-Hill Publishing Company, Inc.

NOVEMBER 27, 1944



Lockheed's Post-War Saturn 75 Aimed At Feederlines: *This new airplane, designed for short-haul, high-frequency airline operation, has a cruising speed of more than 200 mph., carries 14 passengers, a crew of two, baggage and cargo in the standard version.*

Problems Unsettled As Chicago Talks Near Close

Freedom of the air and closely inter-related subject of traffic quotas left undecided in first draft of conference document.....Page 7

CAB's Taxation Group Asks Levies to Aid Aviation

Committee, in two day discussion in Washington, lays groundwork for possible recommendations in report to Congress.....Page 43

Army Allots Over 100 New Planes to Civilian Users

Aircraft involved in recent action by Army were not surplus aircraft but models taken in most cases from production lines.....Page 9

Pilots' "Physicals" Unaffected by Proposed Changes

In view of widespread disagreement on question, Board asks retention of present standards to expedite other revisions.....Page 22

"Should I Use Constant Volume or Variable Volume Aircraft Pumps?"



WHEN TO USE

VICKERS

CONSTANT VOLUME

PISTON TYPE PUMPS

The pump requires no accumulator and unloading valve in the majority of aircraft hydraulic circuits. The fixed-stroke pistons deliver fluid continuously to the unloading valve. The unloading valve automatically opens when the accumulator has received and stored its maximum volume of fluid at system pressure; the pump then operates at no pressure by returning oil directly to reservoir. When the accumulator pressure drops to a predetermined maximum, the unloading valve automatically closes and diverts the oil to charge the accumulator. This constant volume pump is recommended when hydraulic power is required for short periods during take-off and landing . . . when operating flaps, landing gear and power brakes; it also supplies any small demand during flight . . . like fuel flap actuators. And it takes care of normal requirements while on the ground . . . including parking brakes and cargo door operation.



WHEN TO USE

VICKERS

VARIABLE VOLUME

PISTON TYPE PUMPS

This pump automatically delivers the volume of fluid required by the hydraulic system. When the accumulator decreases, the stroke of the pistons is automatically shortened; when more volume is needed, the piston stroke is automatically lengthened. There is no inlet restriction to cause cavitation. An excess of fluid is never pumped. The pump maintains full pressure in the system with minimum horsepower. As integral pressure control device automatically and continuously maintains the desired pressure independent of varying volume demand and of engine speed. This variable volume pump is recommended when hydraulic power is used continuously during flight . . . as for power boost, flight control, gun turret drive, and cabin parachute drive.

Vickers Engineers will gladly discuss with you the relative merits of these pumps for your individual requirements.

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ENGINEERS AND BUILDERS OF
OIL HYDRAULIC EQUIPMENT
SINCE 1921

Washington Observer

OVER-EXUBERANCE—Tendency on the part of municipalities and even states, to ask far more than they will reasonably need of airport funds out of the proposed \$100 million airport law, is expected to be curbed by the requirement that federal funds be matched by local funds.

AAP-CAS OUTLOOK—Renewed discussion of air force backing for the post-war civil air transport system re-asserts the old question concerning the Civil Aeronautics Board: is the scheduled air system to be regarded and treated as a peacetime standby, quickly convertible to military air power? The Civil Aeronautics Act can be interpreted in the affirmative. Up to now, the Board, through its rate-making and route certification powers, has developed the system on a convenience and necessity, minimum cost basis, with a few wartime exceptions.

FEDERAL LINE QUESTION—CAB's decision on the extensive feeder line system now proposed, could be affirmative if the Government is to support a civilian backbone for military power, without regard to necessity. Future decisions on domestic and foreign trunklines could be affected in the same way. The Board can leave this knotty problem to Congress. The matter of building military air power in the shape of civil aviation will be an international consideration.

DOMESTIC SUBSIDIES—Even if subsidies are closely controlled on international routes, domestic subsidies, in this or any country, could support air transport fleets that would count heavily in military operations.

A NEW LEA BILL—There will be aviation sparks flying from the House side of Capitol Hill when the new Congress convenes. Chairman Clarence F. Lea (D-Calif.), of the Interstate and Foreign Commerce Committee, is reported laying plans to launch another aviation bill comparable in scope to the controversial Lea Bill of this session. Lea indicated last week he planned to have his committee start aviation hearings shortly after the new Congress begins work.

INTERNATIONAL AIR REPORT—Whether the Senate Commerce Committee will come forth with a report on international aviation as a result of its year's hearings on the subject is still a matter of conjecture, but the chances of such a report appear to diminish as time passes. Chairman Josiah Bailey (D-N. C.) in Washington for a few days before returning to the Chicago conference, indicated there would be no report before the end of the year. It was pointed out that about two months ago—just before the election recess—Bailey submitted a sketch of "what might develop into a committee report" to members of the aviation subcommittee to "pre-empt" Committee action, the

Bomb Load for B-25 Superfortress





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Molded Plastic Grommet Bracket must be light in weight, yet strong and tough.



THESE DIAMOND FIBRE

Glider Fairleads must be light in weight, strong, and highly abrasion resistant.



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Angle, used to broom baffles in a Bullet Sealing Fuel Tank, must be strong but resilient, and must be oil and gasoline proof.

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Vital Problems Still Unsettled As Chicago Talks Near Close

Freedom of the air and closely interrelated subject of traffic quotas are left undecided in first draft of document drawn up by top men of U. S., Britain and Canada.

By MERLIN MICKEL

Circumstances surrounding last week's submission of a partial draft of a multilateral air transport agreement to the International Civil Aviation Conference at Chicago have drawn strongly that more than minor considerations would remain unsettled when the meeting ended.

The document drawn up by top men of the United States, British and Canadian delegations left unsettled, as first submitted, the important inter-related problems of freedom of the air and adjustment of capacity to traffic offered (first in quotes), and there was little definite indication that they would be ironed out at a scheduled general conference session to be held later in the week.

■ **Wrap-up**—Since the conference apparently was to end Saturday or at the latest by the middle of this week, the question was whether in that time it could dispose of issues that had occurred three weeks almost solidly for more than a week before the draft document was made public last Monday night. Rather, it seemed that these and other more minor differences, although their study was continuing, must receive the attention of whatever international interim body is to function until such time as an international convention can be realized and placed in effect.

The proposed draft was the first conference accomplishment in that direction. Points still under consideration, in addition to traffic quotas and freedom of the air, were the possibility of special provision for United Nations that have been under occupation or devastated by war, to insure them a place in the international picture when they are able to enter it, and the "disaster-stricken trans-

port" section common to treaties.

■ **U. S. Mainline Position**—The draft indicated that the United States had successfully maintained thus far its position that an international air body should have no more than a consultative role regarding such political and economic matters as routes, rates and frequencies. It was the British who appeared to have yielded partly from their contention that these considerations should be within the jurisdiction of an international authority.

As was considered Holy a week ago, the draft left determination of passenger and freight tariffs to operators' conferences subject to review by an international board, and surrounded by safe-guards to permit orderly solution of differences.

The proposal by the United States, United Kingdom and Canadian delegation, none of which committed themselves to the draft,

related primarily to air transport and was submitted for conference consideration and study.

■ **Administration**—Though incomplete, it contemplated formation of an International Air Administration, made up of an Assembly, Board of Directors, and such other bodies as necessary. The Administration would foster planning and development of international air service, with the purpose, stated briefly, of effecting the best service at the lowest possible price with free choice among alternative services, prevent economic waste through unreasonable competition, avoid discrimination between airlines, and encourage aircraft design and operation.

The Assembly would consist of member states' representatives, each state entitled to one vote, the majority deciding unless otherwise provided. Representatives of half the member states would constitute a quorum. The Assembly would meet at least once a year.

The Board of Directors, a permanent body responsible to the Assembly would be composed of a president, elected by the Assembly, and a membership of 14. Seven member states chair in air transport operation would appoint one national each to the board to serve three years, the other seven to come one each from seven other member states.



Plenary Session of International Civil Aviation Conference

★ The United States reportedly urged that, as a consequence to a summit, a summary be written of the detailed course of a proposed strategic arms reduction talks by the U.S., British and Canadian at the International General Aviation Conference in London. The report quoted the 21-page document was released in two parts at night.

★ A conference on the "A-B-C's of Arms Control" was held in London, Britain and Canada started Sunday Nov. 12. After two or three days it appeared that the U.S. and Britain were in agreement on common ground. Speakers for both said reconciliation was near. New difficulties arose, however, and the talks were suspended. There the first draft was issued. One observer summed the talks briefly as follows: "The U.S. and Britain are in the same hand and the operators on the other. Another source closely concerned with a crisis in the talks said that the controversy, described the diplomatic sparring succinctly: "The U.S. puts in a phrase we don't want to hear, and then we try to change it around so it won't mean anything but still won't be understood by the Russians."

★ Lists of potential international

By routes had been substantiated early last week by the United States, France, Poland, Philippine Commonwealth, Italy, Sweden, Turkey, West Germany, Yugoslavia, Greece, Israel, Iran, Czechoslovakia, Belgium, Peru, Venezuela, Argentina, Bolivia, Cuba, Mexico, Netherlands, Spain and Egypt. All but France were made public, and some were termed as "rumor." The countries that were Spain, Lebanon, Yugoslavia, Syria, Turkey, Iran and Czechoslovakia—fewer than half—signified that they had no such information. The United States followed the Czechoslovakian example on several occasions in North America.

It was also reported to have dropped their earlier suggestion that an international commission be set up to investigate the truck route as a test of such open source.

▲ People who wanted to watch the investigation in the Middle East may be interested in the response he gave a reporter who asked him why he wasn't at the Classic Car Show in the National Press Club Chairman said "while my heart is on the show, I'll be busy on the street" by David V. M. M

Allied Aviation, of Baltimore which recently constructed a pilot model of a small, twin-engine bonded-glywood amphibian, is reported in process of sale to Commonwealth Aircraft (formerly Bearskin Aircraft and Engines Inc.), Fairfax Airport, Kansas City.

The amphibian was named the Trimmer for its designer, Gilbert Trimmer, who is associated with the company. R. E. Broad, president of Allied, is also president of General Hedding Co., Baltimore.

† Craft Test Flies.—The Trimmer was flown with apparently satisfactory results last summer. It weighs 2,150 pounds, seats three and has two 35-hp. engines. Allied built the LRA-1 amphibious glider, which was accepted but not put into production because the Navy canceled its entire glider program. Allied produced several other bonded plywood articles for the Navy.

Reports of the subcommittees were coordinated by Edward P. Warner, CAAS vice-chairman. They dealt with communications and airways systems, rules of the air and traffic control practices, terminology of operation and mechanical personnel and log books, airworthiness of aircraft, aircraft registration and identification marks, and

15,000th Ends P-40's

Production of Curtiss-Wright's P-40, once labeled America's most "dashed, adored, damned, praised, ridiculed and lauded" fighting plane has ended with the completion of the company's 15,000th fighter plane for the United Nations. The 15,000th Curtiss fighter came off the

line in Buffalo wearing the insignia of all the 38 different air forces in which Curtiss fighter planes have served during this war. The final plane was the 16th of a series—the P-40's. It was known progressively as Mohawk, Tomahawk, Kittyhawk and Warhawk.

AVIATION CALENDAR

[illegible]

More than 100 new airplanes have been released by the Army in the past few months and allotted to essential civilian users. These are not surplus planes, but planes in most cases taken from Army production lines. The planes are not surplus, but they are surplus to the Army. It is understood that others have been diverted in the same manner and have not yet been certified by the Civil Aeronautics Authority. Twenty-six Douglas DC-7s and two Lockheed L-1049s of the type are not available.

DC-7s Distributed—The new DC-7s assigned airlines were distributed in this manner, six to American Airlines, five to United Airlines, four to Eastern Airlines, two each to Delta and Chicago and Southern, one each to Continental and Pan American. The two Lockheed were in National Airlines, which recently opened its Miami-New York route.

► **Experimental Types**—Twenty of the planes are experimental types released because the Army or the Navy has no need of the particular type of plane. In this category are Consolidated-Vultee's Model 24 and the Budd EB-1.

Some are new types such as the Hiller and Landgraf helicopters, the Globe Swift conventional plane, several Pipas, Taylorcrafts and Aerocubs, and various gliders which might have had some military value but will not be built in quantity for the service.

Allocation Procedure—The plans are being allotted under a procedure in which the Munitions Assignment Board (AAB) and the Joint Allocation Committee approve the reassignment. The plans then are licensed by the Civil Aeronautics Authority under regular procedures.

Under this system, it will be possible for aircraft companies to divert planes from service production lines and equip them for civilian use. The planes are not formally declared surplus. It is the procedure that would be followed if the Douglas proposal is taken. Large quantities of new planes from the production for airlines is accepted. It could work in similar fashion to others, such as Curtiss with its Cessna, Lockheed with the Constellation and Boeing with its new 377 Stratocruiser. Normally the procedure is followed when

► DC-3's Distributed—The new DC-3's assigned airlines were distributed in this manner: six to American Airlines, five to United Airlines, four each to TWA and Northwest, two each to Delta and Chicago and Southern, one each to Continental and Pan American. The two Lockheedes went to National Airlines, which recently opened its Miami-New York service.

[illegible]

RT. 1864

Bevans Cites Need Of Retaining Plants

General stresses advisability of maintaining a strong industry to meet any future emergency.

An indication of the thinking in the Air Force regarding the future of the aircraft industry was pointed up by a recent statement of Maj. Gen. J. M. Bevans, assistant chief of air staff, personnel, who said it was essential that the United States maintain "a very healthy collection" of aircraft manufacturing companies which will be capable of even more rapid expansion in case of future emergency than was possible during recent years.

Stressing the need for flexibility and possibility of quick change-over, General Bevans pointed out

U. S. Combat Planes

Total of U. S. first line combat planes as of Dec. 31, including reserves, was approximately 23,000. Brig. Gen. Frederic H. Smith, Jr., deputy chief of air staff, disclosed. Of this figure he said 12,000 were actually assigned to operating squadrons, 6,000 others were overseas in ready reserves, at maintenance depots or under repair; 1,300 others were on the way to theaters. Smith left the United States, 12,570 others had left factories and modification centers on their way to staging areas or to points of departure from this country; 2,000 others were in modification centers, and a ready reserve in this category of over 1,800 planes was being maintained.

Other planes making up the announced total of 75,000 AAF line combat planes, overseas, planes include 3,000 second line in process of being returned to the United States for special training or experiments; 5,000 planes overseas in transport and troop carrier work; 5,000 mostly light utility and liaison types overseas; 14,000 first line combat and transport planes in the United States; 5,000 others in the shops for repair; 20,000 trainers and miscellaneous planes in this country.

General Smith said principal shortage in transport planes. However trainers are necessary to train additional pilots for much increased first line strength if necessary, he added.

Look Into Future

Maj. Gen. J. M. Bevans, assistant chief of air staff, personnel, is definitely looking ahead.

He said recently that we are in the very elementary stages of aircraft development and then added—without going into detail on jet and turbo-propeller planes—"I am sure we shall all live to see the day when a propeller will be an exhibit for a museum."

that the Lockheed Lightning P-38 fighter, which would seem to be a rather standardized piece of Air Force equipment, still has some modification or improvement incorporated into it on the production line every 48 hours.

Laboratory Work—Research and development of new military aircraft must be carried on, in his opinion, not only by the military but also by industry to give full scope to American inventive genius. In addition, our power must have the substance of a healthy civil aviation body.

International aviation, he said, must be developed because air commerce can be one of the really powerful factors in maintaining happy international relations, with airpower the key to the future to insure a good, secure peace.

General Bevans defined airpower as "the backbone of the Air Force in war to exert it, in peace to develop it for the national defense or as an instrumentality for the enforcing of the peace."

Charles S. MacNeil, Prop Designer, Dies

Charles S. MacNeil, 34, chief engineer of Aeroproducts Division, General Motors Corp., Dayton, Ohio, died last week of a heart attack after bringing his plane to an emergency landing on a hayfield near Brent, Ind., saving the life of a companion who was with him.

Recognized as an outstanding propeller engineer, MacNeil was returning to Dayton from a speaking engagement at Kansas City.

Co-Inventor of Prop—He was co-inventor with W. J. Blanchard of the Aeroproducts propeller. In collaboration with Blanchard, he invented the first dual rotation propeller as well as the automatic constant speed propeller.

He was graduated from Massa-

chusetts Institute of Technology in 1932 and was a member of the Institute of the Aeronautical Sciences and the Society of Automotive Engineers.

MacNeil was born in Malden, Mass., and following his graduation from MIT became associated with Blanchard at Curtiss-Wright Aeroproducts Corp., and later with Aeroproducts Division of General Motors.

AAF Asked to Clear Flying School Policy

ATS President Coochins urges limited production of post-war planes. Army to close six new primary contract units Dec. 28.

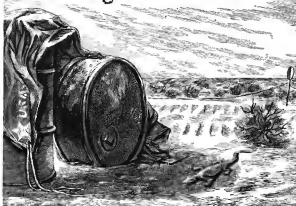
Limited production of post-war planes and deterioration of the Army Air Force's permanent policy on contract schools has been asked by J. Wendell Coochins, president of the Aeronautical Training Society, unambiguously with disclaimers that the Army will close six additional primary contract flying schools on Dec. 28.

Since the caliber of pilots and planes has made it possible to curtail pilot output, Mr. Coochins suggested that it is time for the War Department to determine whether the efficiency, safety and low cost advantages of the contract schools are to be perpetuated in the AAF post-war training program. All remaining schools, said Mr. Coochins, probably will be necessary for the military peacetime pilot program, and "if the contract school system is to be made permanent . . . an announcement to that effect should be made now so that the experienced personnel presently employed . . . these schools will not seek other post-war jobs."

Asks Limited Production—The ATS president also suggested that "now the way has progressed to a point where the greater part of our original 64 contract schools will be closed by Dec. 28, it is not too much to suggest that at least limited production be authorized for the type of planes that will be needed in peacetime operations."

Schools scheduled to close Dec. 28 are: Eagle Field, Des Moines, Calif.; Ryan School of Aeronautics, Torrance, Calif.; Midwest Air School, El Reno, Okla.; Southern Airways Inc., Decatur, Ala.; Darr Aero Tech, Inc., Albany, Ga.; and Raymond-Richardson Aviation Co., Douglas, Ga.

"Sizzling Lizards...HOT!"



Then the machines and materials of our tentative civilization lose 120° of desert heat and you get some new problems . . .

Actually, 100 octane Aviaton Gasoline—velvet-smoking in a desert fuel dump of steel drums, tends to separate into its constituent parts . . . gets "gummy."

This worsens of the hazards of a war in which aviation gasoline must be kept "on tap" in the hottest spots of all geography.

* * *

Scientists at the "University of Petroleum," Shell's research laboratories, found the answer to this new wartime problem . . . a new, revolutionary "inhibitor." A few drops in a barrel of fuel, and its molecules stay put. Gas doesn't form . . .

Storage of 7 years, at 130°, is possible. Although it is not yet in production, the Army Air Force have accepted Shell's new inhibitor as a research job—government of prime importance to desert operations.

Also, this—our more outstanding contribution to America's war effort from Shell.

Shell Research made possible the first conventional production of 100 octane aviation fuel and supplied it to American Military Aviation—giving our planes new speed, flying range, and tactical advantage. Later Shell discoveries vastly increased both the power and production of aviation gasoline.

Today, more Shell 100 octane aviation fuel is supplied to aircraft engines than electricity, for critical test and non-in purposes, than any other brand.

Fought expert operators will find Shell's war-time popularity a profitable peace-time asset.



FINER FUELS FOR THE AGE OF FLIGHT



GAS FOR FIGHTER-BOMBERS:

Gasoline is transferred from delivery trucks at an advanced air base somewhere in France. Many of the cars will be flown to even more advanced airbases from which fighter-bombers are operating against the Germans.

Cut in Naval Air Procurement Slated

A sizable cut-back in naval aviation procurement for the present fiscal year is reflected in the Navy Department's request that its contract authorization be reduced by \$1,991,666,000—from the \$1,656,000,000 approved by Congress in the 1945 appropriation act last June to \$1,650,000,000.

The request was submitted to the House Appropriations Committee, expected to comply with the Navy's proposal by attaching a rider to the coming deficiency appropriation bill. Hearings on this bill began last week.

Research Increasing—Although naval aviation procurement is on the downgrade, the research program of the National Advisory Committee for Aeronautics is still on the up-grade. This is evidenced by the Committee's request that House Appropriations include in the coming deficiency bill supplemental appropriations totaling \$1,901,998—\$2,558,998 for salaries and expenses for an increased personnel force, \$506,900 for construction at the laboratory at Langley Field, Va., and \$3,910,000 for construction work at the Aircraft Engine Research Laboratory at Cleveland.

Other aviation appropriations

asked of Congress are \$20,500 for the Civil Aeronautics Board and \$11,600 for the Post Office Department for additional personnel at normal transfer points.

Curb RCAF Schools

The British Commonwealth Air Training Plan will not be renewed when it expires next Mar. 31, by which time it will have graduated 224,238 since it was started in April, 1940.

Trainers have been sent to Canada from all parts of the British Empire for training under the Royal Canadian Air Force. When the program was at its height it was operated by a staff of 101,418, of which 84,754 were Canadians and 21,865 from other Empire nations. Cost of the program was shared by Canada, Great Britain, Australia and New Zealand.

Swing—Termination of the program was said at Ottawa to be due to a surplus of air crew men built up by the plan, which was gauged on higher casualties than actually have been suffered.

Training bases being closed are to be used for storage or turned over to War Assets Corp., government organizations set up to sell surplus supplies, or will be kept in operation for the time being with skeleton staffs.

Abbott and Turner Resign Jacobs Posts

Resignations of C. J. Abbott as president and director and of Donald F. Turner as vice-president in charge of manufacturing headed a change in the officers of Jacobs Aircraft Engine Co.

Concurrently, it was announced that the management contract between the engineering firm of Ford, Ross & Dunn, Inc., and the company would terminate by mutual consent Dec. 31, 1944. The engineering firm was retained by Jacobs in 1940 to assist and supervise the company's wartime expansion program and the handling of its war production.

Mutually Agreeable—Due to cut-back in procurement for the AAF training program, demands for the company's products have decreased to such an extent as to make the termination of the management contract mutually desirable, the company announced.

J. A. Harris, 3rd, chairman of the board of Jacobs, was elected president as well as chairman. He announced that H. B. Knorr, company treasurer, would assume the additional duties of general manager, a new position, and that A. R. Thomas, now director of purchasing, is appointed assistant general manager.

New Engines—Other officers are: J. Stacy Smith, vice-president and secretary, Albert R. Jacobs, vice-president and director of engineering; Henry M. McFadden, vice-president and engineering manager; and George P. Bruce, assistant secretary-treasurer.

Harris said the company "will continue aggressively the development, manufacture and sale of aircraft engines," and that new engines are in the process of development to increase the company's range in the aviation field.

C-W Plant Inventory

Curtis-Wright airplane plants at Buffalo, Kentucky, St. Louis and Louisville will shut down for the week from Dec. 25 to Jan. 1 to permit taking and adjusting inventories and maintenance work. Simple division efforts disclosed last week.

All of the plants are engaged in production of Curtiss C-46 Commandos, and company officials said the holiday shutdowns will interfere least with production of the big transports.



PERFORMANCE CHARACTERISTICS of the NORTHROP FIGHTER



There's a lot of Tomorrow in the Northrop BLACK WIDOW

Our pilots call the big night fighter an "easy airplane"—it flies so fast, so low, so high.

It climbs like a rocket, it is swift enough to hold its own with fast fighters... and it handles like a polo pony.

The Black Widow can take almost any hit in the air. Its stout, spin, immovable and tough tail keels, it has power one of the most maneuverable planes flying today.

More, it lands short, takes off quickly—without the jerks of most, without any airspeed.

Much of this handling ability is due to Northrop designed "reversible camber" designed into the wings, the fact is just plain.



NORTHROP

Divisions of Northrop Aircraft Inc., a subsidiary of Northrop Corporation

Black Widow P-61 Night Fighter

NORTHROP AIRCRAFT INC. • NORTHROP FIGHTER NORTHROP

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Compulsory Training Urged at Clinic

Post-war military programs to provide U.S. pilots with possible post-war service called for in a resolution adopted at final session.

Compulsory military training to provide the United States with an air force that can successfully smash any future attacks on this country or its possessions was called for in a resolution adopted at the closing session of the National Aviation Clinic at Oklahoma City.

Proposed from the floor by J. Carleton Ward, president of Fairchild Engine & Airplane Corp., the resolution was unanimously adopted after a second by Dudley M. Steele, Burbank airport manager. Steele's son and Ward's stepson have both been killed in combat against Japan. The resolution pointed to need for professional armies, of age suitable to combat rigors, and followed a warning from Ward that airpower's present development and future potential destructive forces, means disaster for any country caught off-guard with an inadequate air defense in future. Proposals—Other resolutions re-

lated last year's clinic's demands for a unified department of national defense consolidating Army, Navy and air, urged speed-up of CAA hearings on airline and second-class airlines, endorsed aviation education for veterans and high school aviation classes, called for speedy development of airports, parks, harbors and flight strips by government and private agencies, and asked that land donated for public use as airports should be tax-free.

They also opposed practice of granting exclusive landing privileges to any single aviation or vendor at an airport, urged peacetime leasing of airport facilities built in the war effort, to municipalities or other political subdivisions, with a clause providing facilities would be immediately available for national defense emergency; petitioned Congress to provide funds to continue CAA operations of control towers, and funds to assist municipalities in financing maintenance of large airports, where the cost was too high, and where the field was needed as a defense reserve, called for expanded intensive research by government and industry, urged speedy mobilization of personnel of terminated war contracts and called for disposal of

surplus aircraft in a manner which would not destroy the aircraft market and the aircraft industry.

Canadian Planes

Central Aircraft official, in SAE address, doubts that Dominion can make serious bid for world plane market.

The Canadian aircraft industry cannot expect to compete for world aircraft markets after the war, in the opinion of W. J. McKinnough, managing director of Central Aircraft, Ltd., but should develop a new aerial work horse for the development of the Canadian northland.

He believes that the most profitable source of business for Canada's post-war aircraft industry lies in the development of Canada's natural resources.

Addressing SAE at Toronto—"What we need most of all," he said a recent meeting of the Society of Automotive Engineers at Toronto, "is a new work horse of the north, cheap as a first cost, economical in operation and easy to maintain." The backbone of Canada lies in her timber and mineral resources and to further the development of these vital fibres of our natural progress we must have airplanes of the right type and plenty of them.

In the 10 years before the war the airplane in Canada advanced the frontier by more than 100 years, McKinnough said, helping to develop thousands of areas never before visited by white men. He expected that the Canadian aircraft industry will have to double about 144,000 of the 125,000 now employed in it after the war ends. In 1937, only about 500 persons were working in the industry.

Bell Cuts Work Week

In the first major shift of hourly schedules revealed, Bell Aircraft Corp. is reducing the work week of 5,993 non-production employees in the corporation's three plants in Buffalo and Niagara Falls, Schenectady in the Marston (Os.) B-25 plant remain the same.

The cut in hours is from 46 a week to 44, exemption permitting the company to reduce schedules from the mandatory 46-hour week by clerical, office and administrative employees was granted by the War Manpower Commission, and does not indicate any reduction in production schedules.

Air Power Through Piston Rings



McQUAY-NORRIS
ALTIMIZED
PISTON RINGS
PISTONS...PINS...
HARDENED AND GROUND PARTS

More and more, the leading makers of aircraft motors are using McQuay-Norris precision parts. Our 34 years' experience in precision manufacture, our long and intensive work in metallurgy, heat treating, clinical research and laboratory experiment, enable us to turn out the sturdy, dependable parts demanded by modern aviation. Your inquiries are invited.

PRECISION WORKERS IN IRON, STEEL, ALUMINUM, BRONZE, MAGNESIUM



McQUAY-NORRIS MFG. CO. (AIRCRAFT DIVISION), ST. LOUIS, U.S.A.

CANADIAN PLANT, TORONTO, ONTARIO

PARTS FOR AIRCRAFT ENGINES

Piston Rings
Oil Sealing Rings
Scrubber Rings
Carburetor Parts
Mechanical Alternators
Pistons
Piston Pins
Coolerweight Check Pins
Mechanical Magnesium Parts
Cylinder Hold Down Nuts
Handed and Ground Parts

PARTS FOR PROPELLER ASSEMBLY

Mechanical Magnesium Parts
Piston Rings

EQUIPMENT FOR MAINTENANCE OF AIRCRAFT

Pistons for Oxygen Compressor
Piston Rings for Oxygen Compressor
Pins for Oxygen Compressor
Pins for Air Compressor
Piston Rings for Air Compressor

LANDING GEAR PARTS

Mechanical Aluminum
Pistons
Piston Pins
Handed and Ground Parts



KINGFISHER NAVY RESCUE PLANE:

The Chance Vought OS2U-3 Kingfisher has proved one of the most versatile of the Navy's planes, but its biggest role has been that of rescuer. Of Navy pilots downed in the Pacific, 67 men from torpedoes down, of downed aviators such as those men aboard a Coast Guard rescue plane off the east coast. Two of the best known rescues were of Navy pilots under the guns of Jap-held Truk.

PRIVATE FLYING

Fairchild Head Sees Wide Spread In Personal Plane Needs, Prices

J. Carleton Ward says consensus of customers' specifications calls for aircraft costing about \$13,500 to produce, with average purchaser expecting to pay from \$1,500 to \$2,500.

By ALEXANDER McSUIRELY

What the public wants in a post-war personal plane and what it may be able to get for the price it is willing to pay, are two different things, is the opinion of J. Carleton Ward, president of Fairchild Engine and Airplane Corp.

In a realistic consideration of engineering costs involved in building the post-war personal plane called for by a consensus of potential customers' specifications as reported in various surveys, Mr. Ward finds that the total price of the airplane, on pre-war cost basis would come to about \$13,500 whereas the average consumer, according to the surveys expects to pay between \$1,500 and \$2,500.

Specifications—Speaking at the recent National Aviation Clinic at Oklahoma City, Mr. Ward described the plane, speed, range, a composite of recent surveys as low wing, with retractable tricycle landing gear, four to five seats 150 pounds baggage allowance in 38 cubic feet of space, installed for heat and sound, with cabin heater and ventilator, full instruments for night or day instrument flight, two-way radio for standard bands and VHF, bonded and shielded two door instrument, dual carburetor and an interior as luxurious as a high class automobile.

The plane is expected to cruise at 125-150 mph, takeoff over 90 feet, climb in 1,300 feet, climb at 550 feet per minute, land at 50 mph, and have 800-mile range with alternate fuel and reserve, and 12,000 foot ceiling.

Mr. Ward pointed out that, while some reduction in costs of instruments and equipment may be expected, there is no basis for engine costs which will meet expectations of the airplane builders or the public. Lowest selling price, as confirmed by manufacturers, indicates a hoped-for figure of \$8 per horsepower, and most manufacturers indicate that expected costs

will be nearer \$10 per horsepower. **Mass Production**—Advantages of war techniques developed through mass production have been overused, and even in wartime the aircraft industry never approached the quantity of unit airplane production required for the mass manufacture found in the automobile industry, where single manufacturers turn out 500 to 5,000 units per day, an equivalent wartime production of 10,000 airplane units per month by the whole industry.

One prominent manufacturer, he reported, has said he expects to replace all his tooling and production engineers after the war, because it will be impossible for him to produce economically by the same methods as he could with substituted labor for production of tooling to overcome shortage of skilled labor.

New Materials—Arguments that new metals, alloys and plastics will reduce costs, have been general statements, not accompanied by "a bit of particulars that would convince the prudent manufacturer," he added.

Gas turbines, jet engines, two-cycle engines, and other prime movers are under development are not expected to be available for quantity use in the personal plane field, in the immediate post-war years. All production engines in use in the war were designed before the war, and experienced manufacturers doubt that there will be any "revolutionary jump" in the curve of engine development.

Reserve—Surplus engines will be an important factor in the personal plane market, and may be available at fantastically low prices, depending on how they are marketed, but Mr. Ward warns against the dangers of progress in the aviation industry without a healthy engine industry, which could hardly exist in the face of

wholesale dumping of surplus engines. Moreover, unless the engines are remanufactured and subject to the manufacturer's guarantee, unsold engines may prove a boomerang to the entire industry.

The Fairchild president regards labor costs, a basic factor in manufacturing costs, as an unknown factor in the post-war period. He foresees gradual recovery to peacetime plane manufacturing in three phases, reconditioning of surplus pre-war types, a first wave of post-war planes built by smaller and specialized companies accompanied by some conversions of war models to peacetime sport and personal use, and finally the main period when established and old-line manufacturers who have continued in war production, get back to peacetime types. He predicts that a wide variety of competitive models and types offered at first, will eventually shrink into a smaller number of competitive models manufactured by a few large groups with national distribution, service and finance.

New Plastic Bonded Hangar Developed

A new plastic bonded hangar for large, single-engine airplanes is offered by Texas Pre-Fabricated Housing Co., Dallas.

The "T-45" has 44½-foot door width, a 30 foot deep, with 11-foot clearance. Construction is Douglas fir plywood over yellow pine frame. Plastic adhesive used in three versions are designed as waterproof, warproof, and repellent to insects and dry rot. The roof, of the same plywood, is 650 square feet and is designed to support 85 pounds per square foot, which is equal to very heavy snowfall. The pitch is 2½ inches per foot.

Concrete Fiers—The building is anchored to 18 concrete piers 12 inches square by 12 inches deep, and "will withstand winds of hurricane velocity." The company says the patented plywood box-beam over the door will carry 2,500 pounds or more without sagging.

Covered with aluminum paint on asphalt base, the T-45 will resist moisture condensation and weather in all climates, according to the company's statement. The lightly balanced door is the hinge canopy type, swinging up into the hangar top, with half projecting as an awning.

PICTURE OF A DREAM

about to become a fact



TOMORROW'S FAMILY AIRPLANE! WHAT WILL IT BE?

- Low-wing? High-wing? All-wing?
- Will it be manual or plane? or what?
- Will it have one engine? or two?
- How about speed?
- Will it be even simpler to operate than a car?
- What will it cost?

These intensely practical considerations today are guiding Taylorcraft engineers as they design and re-design the fundamental improvements of the light plane for war which will become the family airplane of the future—the

airplane that you, your family and your friends will fly.

Since 1941, the only aircraft Taylorcraft has produced have been planes for war—"grasshoppers" that fly at low altitudes, sporting troop movements, carrying messages, taking off from and landing in rough, postage-stamp fields. But Taylorcraft hasn't forgotten its obligation to the American people as its past and future customers, to perfect the safe, sure, low-cost airplane of advanced design that will fully measure up to tomorrow's needs. That obligation is being met.



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Sole supplier of 100 octane gasoline to the Army, Navy, and United Nations air forces

Congressional Flight School "Converts" with Little Difficulty

Organization, operated by Arthur Hyde reopened last June after being closed two years by coastal security ban, now has from 500 to 600 students.

By BLAINE STUBBERFIELD

Here is a case history of an old private flying base getting back into civilian business.

Congressional School of Aeronautics, eight miles northeast of Washington, D. C., was closed Aug. 4, 1943, under the First Fighter Command's coastal security ban. It was reopened last June 30 by means of a corridor to the unrestricted airman, and today has 600 to 900 flight students. A chart on the office wall showed 138 hours before the day before this writer's visit.

Owner Arthur Hyde, who has run Congressional since 1934, says he can build up his student list to 1,500 or more when peace ends transportation and other troubles and permits him to improve his services and add attractions. The field was occupied during the ban by Civil Air Patrol, flying searchlight and air tracking missions. Headquarters of the Maryland Wing 33 is still there.

50 Percent Primary Students—About 50 percent of Hyde's business is primary students. About 15 percent of these are women: Waves, Wacs, Marines and government girls. Most of them of course do not hope to buy airplanes of their own. They are simply taking their choice of available classrooms for their spare money.

Hyde tells people that learning to fly is a worth-while education in aeronautics, whether one intends to own a plane or not. Persons who fly, he says, will understand and feel at home in the aviation era just ahead.

When private flying was grounded in 1943, Hyde moved to Martinsburg, W. Va., where he gave flight training to 60 boys every eight weeks, through the Civil Pilot Training-WT8 period, using 25 Waco, Taylorcraft and Piper.

The Martinsburg field is now operating a civilian business, owned and managed by Hyde. Two 3,600-foot runways have just been completed.

Bought 10 WT8 Planes—Hyde brought 15 planes from Martinsburg, when he opened the Con-

gressional field in June, and has since purchased ten planes from WTS, total 25. He doesn't want any of the heavier basic trainer type, and expects some difficulty in getting more airplanes until such time as manufacturers may be permitted to turn out new planes or the Army decides to declare as surplus property some of its falcon planes.

Deadline for private operations is tightened, under the Civil Aeronautics Administration's retraining program, Hyde says. The individual flyer does not use coupons, he just rolls up and calls for service. Allocation of fuel is made to individual students. Congressional gets all it wants, but is not allowed to make taxi or charter trips. All flights must be for training purposes, and there is no provision that they are war-connected.

Post-War Program—Congressional airport, first used as such in 1934, occupies 250 acres. The soil surface is selling contour of each elevation. On some parts of the field canal is being trenched some other parts, but the customers do not seem to mind that. Present plans are to plow up two or three airways after the war and hand them over with one of the several chemicals now being developed for that purpose. Mr. Hyde figures on erecting modern buildings, showrooms and non-aviation recreational facilities.

At this time, Congressional employs 17 instructors, two of whom are girls—the latter doing first class work. Instructors are paid on hourly rate. Rate to students is \$7 per hour solo, and \$10 dual. This is one dollar higher than the pre-war rates. Mr. Hyde sees no immediate possibility of reducing them.

Some base operators say they have possessed aviation for love and no money. Mr. Hyde says he always has made a profit at Congressional airport, and still does. In addition to selling flight services, he sells Taylorcraft, and expects to continue. Taylorcraft is sufficiently pleased with his rec-

ord, he believes, to allow him to take on civilian agency.

New Selling Methods—He has several ideas on new airplane selling methods. For one thing, he will employ salesmen who do nothing else but sell. He has some plans for displaying airplanes, which he is not ready to discuss and he says the question whether salesmen ought to be armed or well-dressed sometimes is arguable, but doesn't state which side he is on. Hyde says he did pretty well as a distributor without using any modern merchandising methods. By using such methods, he thinks he can do much better here.

The merchandising of aircraft is a subject that hasn't yet been scratched, in his opinion.

In regions like Washington, which has good airline connections, Hyde does not see much charter and taxi business, although he will handle what he can get. Taxi fares are so high in comparison with scheduled rates that few will pay them. Fly-yourself is the better method, he says. Past experience has been that a very large percentage of students don't get certificates and most of those who do don't buy airplanes. If this trend continues, and post-war aircraft prices are as high as expected, Hyde believes most planes may be sold to fly-yourself service than will be sold to private owners.

On July 30 Mr. Hyde is opening Hyde Field, at Clinton, Md., six miles southeast of Washington. This 300-acre field has two macadam runways, built by the Navy, which took it over from Hyde. Before he had put it in operation, before the war, and operated it during the training period. One runway is 2,900 feet long, the other is 2,000, and there are several short practice runways. Modern office and operations buildings are nearing completion, and 140 private hangars will be erected. A number of airplanes were held in reserve to open the new field. Mr. Hyde owns it outright, with no debts.

New Port Dedication

Pittsburgh's present commercial airport, Allegheny County Airport, will be used for private flying and cargo planes after the war, it has been announced in plans for dedication of the new \$12,000,000 Allegheny Pittsburgh airport, set for Dec. 9.

Air Transport Command will

more its activities from the present county airport to the new field at destination time and will operate the field exclusively until the war ends. Commercial airline operations will continue at the county airport until the end of the war, when they will move to the Greater Pittsburgh port, leaving Allegheny to private flyers and cargo.

Briefing

For Private Flyers and Non-Scheduled Aviation.

By ALEXANDER MCBURLEY

Fuller utilization of existing airports for private flyers, by a new runway and traffic pattern which would make it possible for two planes to land and take off all at the same time on a 160-acre field, as being studied by the Little Rock Aviation Commission. The plan, prepared by George Roberts of the commission calls for eight 1,845 foot runways 100 feet wide, and language at the far corner of the field. By addition of small acreage, the field could be developed into a feeder airline port.

► **Model Airpark**—Eldon, Mo., a city of 2866 population, 12 miles from Lake of the Ozarks, is building an airpark as an operating example of what a small community will need in the air age. Financed by the city, with state planning and from E. V. Frybaird, the aviation development section head, the Airpark site is within walking distance of any place in town. Eldon plans to invite the aviation industry to place exhibits of luggage and service equipment at the airport, for demonstration to other Missouri towns.

► **Wilson Told Her**—A high spot of the Aviation Clinic at Ohio State City came last week for the aviation expert when NATA's John Wilson got up on his hind legs and told both municipal and state governments where to head in. His comments came just after a squabble between representatives of the two governmental divisions, as to which should deal with the federal government to get federal grants for airports. "The main thing is to get the airports," said Wilson, "and aviation can't afford to have the program tied up by jurisdictional squabbles." He went on to point out that while private flying and non-scheduled aviation represented 46 per cent of the total, these airports needs are being neglected, and demanded a change in policy.

Pilots' Physical Requirements Unaffected by Proposed Changes

In view of widespread disagreement on question, Board asks retention of present standards to expedite other revisions.

The long-awaited proposed revisions of Parts 20, 43 and 65 of the Civil Air Regulations, affecting private pilots, are being circulated for comment by CAB with still no decision on the relaxing of physical requirements.

Declaring a non-definite difference of opinion exists on the question between pilots and physicians and among pilots themselves, the Board stated "the matter is under intensive study and an objective research program is under way which we have well justified substantiating evidence upon which to make these changes."

► **Regulation Amended**—The Board therefore proposed to retain the present medical requirements so as not to delay putting into effect the other revisions. It pointed out that the applicable regulation already has been amended to permit persons with physical defects to obtain certificates on demonstration of ability to pilot aircraft safely.

The suggested revisions of Part 20, 43 and 65 were known in Ohio State City during the closing sessions of the National Aviation Clinic. With CAB officials present to explain details of the changes, comment was that, while the revisions did not go far enough, at least a start had been made. The amended Clinic schedule prevented formal consideration of the amendments.

Other major recommendations: ► **Applicant for powered aircraft** must have 16 hours dual, 30 hours solo time in three-control aircraft, or 7 and 26 hours in two-control non-scheduled planes. At least five hours must have been logged within the 90 days immediately preceding application. Cross-country time must be eight hours, including one flight of not less than 50 miles with two full-stop landings enroute. Eliminated is flight test in spins.

► **Applicant must be able to perform** such maneuvers as landings from not more than 1,600-foot altitude with engine throttled and 100-degree change of direction; moderately-banked figure eight with altitude variation not exceed-

ing 200 feet, 715-degree power turn in each direction with no less than 60-degree bank and altitude variation no greater than 100 feet.

Applicant for instrument rating must have logged at least 40 hours instrument flight under actual or simulated instrument flight conditions, not less than 15 hours of which must have been in actual flight.

► **A pilot shall not fly under instrument flight rules** unless he has had at least six hours instrument flight during the preceding six calendar months, or logged six hours under actual instrument conditions while accompanied by a pilot holding an instrument rating, or under simulated conditions in CAA-approved equipment.

► **Changes**—Prominent among the changes is that automatically extending the airworthiness certificate of an aircraft beyond the year's period provided it be given periodic inspection by a "mechanic designated for that purpose by the Administrator."

Under the proposed regulations, weather enroute would be based upon visibility and proximity to clouds, rather than upon ceiling. For flight alt, always, or on airways below 1,000 feet, minimum visibility would be one mile. Above 1,000 feet, minimum proximity to clouds would be 500 feet vertically, 2,000 feet horizontally. The same regulation applies at any altitude within a control zone.

Lease Hangar Space

Seethers Air Service, Inc. has leased 22,000 square feet of hangar and space at Atlanta municipal airport, for another operations base in its area and service system, which also includes main base at Athens and Macon, Ga., and associate bases in other smaller cities, in conjunction with individual operations on a standard plan of operation.

The business and shore formerly were used by Delta Airlines as a modification center. Sales, student instruction, charter flights and repairs will be principal activities at the Atlanta base.



Faster and Fresher via Cyclones

Transportation of perishables by air becomes a highly interesting prospect in two-mile costs check. Yet no comparable cost consideration is so perishable as human vitality, which on extended trips will be like lettuce or gardenias.

Faster, Cyclone-powered air transport gives passengers a wide travel advantage in distance covered before fatigue sets in. With still higher standards of passenger comfort and speed in sight for tomorrow, transportation to any part of the world will be possible with suc-

cessful saving of passenger vitality.

The accepted high-power engine for super-speed transport in such installations as the Boeing Superfaster, Lockheed Constellation, Curtiss CW-32, Cessna and Martin Mars as the Cyclone 13, with a rating of more than 2200 horsepower. True to Wright tradition, the smooth-running Cyclone 13 is thrifty of fuel and maintenance, and offers operation a pay-load boom of two extra passengers over comparable power plants. Wright Cyclones pay their way.

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LESS WEIGHT—MORE PAYLOAD
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Worth as Much
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"One experience in New England over a period of years emphasizes the value of every pound of increased payload. Each pound of unnecessary weight saved can mean that much more for passengers and cargo. For example, one pound of excess weight on the Boston-New York run, operated with 24-passenger DC-3's on hourly schedules, could cost Northwest as much as \$300.00 a year."

Boots Nuts Solve Up to 60 Lbs. Per Plane

- Lighter, stronger, boots slip up cargo reports.
- Meet all specifications of government aviation agencies.
- Standard design on all post-war commercial ships.
- Standard standard with an all types of plane—lighter, heavier, transport.
- Can be used again and again—yet self locking prop. never slips.
- "The best of the plane."

Model Pictures—"All Work And No Play"—(1) new, (2) old—(3) old. Write for information.

BOOTS STEEL ANCHOR NUT

(W8, 1/2") No comparable item yet in 100 lbs. heavier than this all metal self locking nut.



Send for Free Weight-Saving Booklet
Actual weight of only 150 lb. (100 lb. self locking nut) is used in aircraft, shipbuilding, as well as for the maintenance of aircraft, shipbuilding, railroads, and other maintenance projects. Copy will be sent you, free, on request.

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"They Fly With Their Boots On... Lighter"

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Representatives in New York • Chicago • Detroit • Indianapolis • Los Angeles • Kansas City • Dallas • Toronto • Montreal • Vancouver

PERSONNEL

Christopher de Groot, formerly U. S. sales representative of Pan American Airways, has been appointed general traffic manager to head the line's traffic and sales activities in North and South America.



De Groot's headquarters will be in New York, but he will spend some time at Panagra's South American headquarters in Lima, Peru, and other industrial centers. Before joining Panagra in 1938, he was engaged in promoting trans-Atlantic travel through educational and sales promotion campaigns.

The Evans Glider Trophy for 1945 was awarded to Richard C. dePue, former special assistant of the Army Air Forces Glider Program, who was killed on an experimental glider flight Sept. 11, 1944. The award was presented by Maj. Gen. L. S. Kuter, assistant chief of air staff, Plans, to Richard C. dePue, Jr., eight year old son of dePue. Also present at the ceremony in the Pentagon Building were Mrs. Allison dePue, widow, and A. Felix chief of Wil-

lington, Del. The first award, made for the year 1942, was given posthumously to the late Maj. Lewis B. Durringer.

Robinson Aviation, Inc., New York, has opened a West Coast Division in Hollywood. E. S. Tins has been transferred from the New York office to become manager of the new division. Robinson holds vibration mounting. F. C. Thomas, formerly chief engineer of the Northwestern Aircraft Co., Minneapolis, and of Air Parts, Inc., Minneapolis, is now assistant to C. S. Robinson, president and chief engineer of Robinson Aviation.

Nate Hook, founder and owner of General Television and Radio Corp., has joined Lear, Inc., as merchandising manager in charge of styling and marketing a nationally new line of Lear in-home radio sets.



Lear is at present building aircraft radio. Hook has distributed more than 4,000,000 model planes during the war, models that have had widespread use for instructional purposes, and has been working with radio since the days of crystal sets. He has been with Police and Emerson Radio.

Glen Redhead has been appointed manager of the Columbus, Ohio, office of the Aero Insurance Underwriters. Redhead was active in aviation insurance in Toledo prior to joining the British Commonwealth Flying Training Program in Canada in 1942. He has also been a Civil Air Patrol pilot in Florida and as a transport pilot in the Air Transport Command.

Fred C. Fischer, industrial and public relations manager of the Long Beach plant of Douglas Aircraft Co., Inc., has been named assistant industrial relations manager for all Douglas plants to assist A. G. Galbraith.

Fairchild Engine and Airplane Corp. announces formation of a new engineering liaison section in Dayton as part of the design division of engineering. George A. Evans will head the new group assisted by Charles M. Wax and G. H. Persons.

George W. Wale has joined the Standard Molding Corp., Dayton. He



AT PORT CEREMONY:

Three speakers at the dedication of the Morgantown, W. Va., Municipal Airport's new light tower, left to right: Mrs. Blanche Nogel, famed aviator and a Bendix trophy winner who is now with the Civil Aeronautics Authority; Rep. Jennings Randolph of W. Va., who has an airport bill pending before Congress; and Col. H. C. Green, president of the West Virginia Aviation Foundation.

has been with the Celanese Chemical Corp.'s Dayton office since the Air Corps work for the past two years.

David M. Mahoney has been elected vice-president and general manager of Westinghouse Electric Supply Co.

Mrs. Grace M. Harman, formerly administrative assistant of the Economic Bureau of the Civil Aeronautics Board, has been appointed assistant chief of public relations for CAB, replacing Doris Miller, who has joined the public relations staff of American Airlines, Inc., in Washington.



Mrs. Bertram had previous experience in New York and with the Interstate Commerce Commission before joining the CAB about seven years ago.

Changes in command assignments of the Army Air Forces include Brig. Gen. William W. Walsh, newly appointed Assistant Chief of Air Staff, Training; and Maj. Gen. William G. Butler in commanding general of the 4th Air Force; Maj. Gen. Ralph W. Woodson, a former commander of the latter post, is now commanding general of U. S. Army Forces in the South Atlantic.

Don Boliver, factory superintendent of the Nashville division of Consolidated Vultee Aircraft Corp., has been appointed works manager of

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Today and Tomorrow

In the past 25 years, Mid-Continent has been a leader in the development of new and improved lubricants of all types. D-X Aviation Oil is one of the recent results of this progressive research. It is a superior lubricant designed for and used in military aircraft in all parts of the world. Limited quantities are now available for civilian use.

MID-CONTINENT PETROLEUM CORPORATION

TULSA, OKLAHOMA

the plant, succeeding Ernest Westmeier, who was assistant design manager. **Reverend Clark**, former night factory superintendent, succeeds Ballou as superintendent, and **W. H. Cook**, a former general foreman, becomes night superintendent.

Samuel S. Meigs, manager of one of the western precincts of the district, Air Technical Command, has been promoted from lieutenant colonel to colonel. He also represents the Aircraft Resources Control Office on the Production Agency Committee and the Manpower Priorities Committee.

H. Webster Cron (photo) has been appointed manager of the New Products division of Goodrich Corp., succeeding **Ray Hudson** who goes to Detroit on a new assignment. In his new post, Cron will continue to head the company's outside activities in light-tube-in. In 1944, was named manager of Aircraft Division for Goodrich, he coordinates with subcontractors the large aircraft production schedule for the Navy.

Garry W. Hayes, Jr., is the new district traffic manager in Washington for American Airlines, Inc., replacing **Michael D. Ford**, who has been transferred to Chicago as regional passenger traffic manager. Hayes was formerly traffic manager for American in Buffalo and since 1935 has held various traffic positions in St. Paul, Minneapolis, Chicago and Milwaukee. While in Buffalo he served on the board of governors and was chairman of the Economic Division of the Men American Council of the Coordinator of Inter-



Ford

American Affairs. Ford spent eight years in the Washington office of American Airlines. Hayes has been replaced in Buffalo by **George C. Wright**, who was traffic manager for American in Syracuse. **Edward Anger** has been transferred from Boston where he was traffic representative, to Wright's post in Syracuse.



DR. LOMBARD HONORED:

Major Gen. **Albert E. Lombard**, assistant chief of air staff, presents the emblem for Exceptional Civil Service to **Dr. Albert E. Lombard, Jr.**, special assistant to the director of the Aircraft Resources Control Office for his outstanding contribution in assisting in the development of aircraft resources.

James M. Robison has been named national representative of the R. T. Goodrich Co. on the staff of the new Commission Tire Co. in Dayton.

William K. McArthur, 43, assistant to the Atlantic division traffic manager of Pan American Airways, died recently at his home in Leicestershire, N.Y. McArthur joined Pan American in 1942 after serving 22 years with the American Express Co. and Thomas

Cook travel agency. He was known as travel czar throughout the world and estimated that he had made about 40 crossings of the equator by ship and airplane.

Ira G. Ross, formerly assistant head of the research laboratory's structural department of Cation-Wright Corp., and **William F. Mueller, Jr.**, former head of Flight and Aerodynamics for Avion, Inc., have been named as manager and assistant manager respectively of the Cation-Wright research laboratory's newly established department of Flight Research.

Major Amos E. M. Talbert, former aviation editor and foreign correspondent of the New York Herald Tribune, recently received his promotion from the rank of captain. Major Talbert is a combat intelli-

gence officer assigned to the Eighth Air Force headquarters in England. He entered the Army May 16, 1942, and attended officer training school at Fort Myer, Va.

TELLING THE WORLD

• National Tool and Die Manufacturers Association has started publication of a bi-weekly "News Letter" to keep executives posted on news of the industry. National headquarters are in Cleveland. Emphasis is placed in the letter on developments within the industry itself, and Washington happenings. It is being issued through publicity headquarters at 2 West 44th Street, New York, and any executive may write to be on the mailing list.

• Western Electric Co., celebrates its 75th anniversary this month. As part of the anniversary observance, employees of the company in key cities will project a feature-length motion picture entitled "Heritage For Victory" which dramatizes the growth of the organization over three-quarters of a century. Western Electric was founded in Rochester, N. Y.

• Fourteen new motion pictures to sell in the training of war production workers in vocational schools and war industries have been released by the U. S. Office of Education. The new films cover such subjects as aircraft construction, precision, welding and engineering.

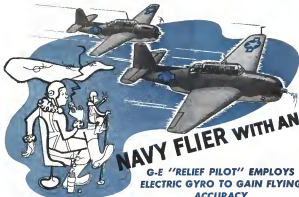
• Walt Disney Studios have prepared two training films covering the fundamental theories of electricity and electronics. The training films are being given wide distribution because the Air Technical Service Command has recommended that every electrical specialist in the Army Air Forces view the films at least once.

• A training film portraying the proper use of a submachine gun has been released for distribution. The film was prepared through the coöperation efforts of the Office of Training, Bureau of Training, Audio Division, and the First Motion Picture Unit.

• Bendix Aviation Corp. plans to launch an aggressive merchandising and advertising campaign within its line of A-10 and P-51 radios and radio-photograph combinations is introduced. Newspaper advertisements are planned. The sale of home radios is the company's first venture into the consumer field.

• A panorama of photographs showing the firm's various products and their wartime usage makes up the current "Cleveland Camera Company" catalog. "Patents" report on "Engineered Production."

NAVY FLIER WITH AN G-E "RELIEF PILOT" EMPLOYS ELECTRIC GYRO TO GAIN FLYING ACCURACY



Whether he's hot on the trail of a Jap convoy or patrolling vast, lonely stretches of the Pacific, a torpedo-bomber pilot puts a lot of faith in his automatic pilot. It must help him find tiny far-off targets. It must relieve the treacherous monotony of straight flying. And, if he's carrier-bound with "no gas to spare," it's got to hit the needle's eye.

It is no wonder then that our newest torpedo bombers are equipped with the G-E electric gyro autopilot!

HARD PILOT OR SOFT

The G-E autopilot is exceptionally flexible. It can serve as a "hard pilot" for flying where you want to sacrifice comfort for extreme accuracy. Or, at the turn of a dial, it becomes a "soft pilot," providing a smooth ride while still insuring a high degree of accuracy. More, it can be set to automatically circle the ship at a rendezvous, or to hold a helical course to gain altitude.

The G-E autopilot offers a lot of other things, too. It is highly stable, preventing the plane

from hunting or fluttering. It is accurate at high altitudes. It is light in weight. Especially important, it is easy to service and maintain.

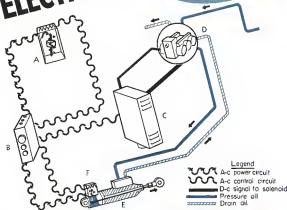
MOTOR-OPERATED GYRO

Heart of the G-E autopilot—and one of its principal advantages—is its electrically driven gyro. Operating on 100-cycle a-c, extremely high, synchronous speed is obtained; and, unlike air-operated gyros, this speed is not affected by altitude. This adds up to greater gyro stability and increased accuracy of control.

Further, by electrifying the units which detect and amplify signals originated by the gyro, G-E has done away with mechanical linkages and greatly increased the system's flexibility. Simple electric controls now make it easy to adjust the autopilot for any type of flight, for any degree of stability.

The G-E autopilot is indeed an excellent example of G-E's ability to develop complete, integrated systems for aircraft. General Electric Company, Schenectady 5, New York.

ELECTRIC HEART



HOW IT WORKS

This simplified schematic diagram shows the G-E autopilot in the process of correcting left bank. The axis of the electrically driven gyro (A) remains vertical. Electric periods within the gyro housing, which have retuned with the ship, detect the degree of rotation and send a signal through the junction box (B) to the servo-amplifier (C). Here the signal current is amplified and rectified to d-c. The direct current then operates the solenoid transfer valve (D) in the correct direction to permit high-pressure oil to force the piston in the hydraulic system to the right.

As the piston moves, it turns the rotor of an electric follow-up device (F). Displacement of this rotor (primary), which is coupled from the a-c power supply, produces a signal in the stator (secondary). This signal "works against" the first signal, gradually reducing the latter's voltage as the piston moves to the correct position.

Buy all the GECCS you use—and keep all you buy



GENERAL ELECTRIC

Coast Industry Cold to Program For Limited Conversion in East

Aircraft manufacturers keeping watchful eye on San Francisco hearings of Committee to Investigate Effects of Centralization of Heavy Industry.

The aircraft manufacturing industry has a primary interest in the hearings being held in San Francisco by the Committee to Investigate the Effects of the Centralization of Heavy Industry, of which Sen. McCarran (D-Nev.) is chairman.

The committee proposes that Eastern manufacturers be permitted to convert to civilian production first—in a limited extent, a move contrary to the views of West Coast aircraft manufacturers anxious to get into commercial production as soon as possible. The committee's view, generally, is that West Coast manufacturers keep on war contracts as long as there are war contracts to be had, on the belief that this procedure will run to the West's interest in the long run.

► **'Freezing' Urged**—Several mem-

bers propose a limit to the degree to which eastern manufacturers could participate in civilian aircraft production by "freezing" Government-owned plants for "an indefinite period," unless manufacturers were willing to scrap their old privately-owned facilities and carry on operations in a new Government plant.

Pointing out that aircraft production accounts for 60 per cent of all war contracts in the three West Coast states, the McCarran group in a recent report maintained that outbidding would hit the West too hard and could be better taken by the East, whose increase in industrial employment, percentage-wise, during the war period has been much less than in the West. The increase in industrial employment in the East has been only 46 per cent, compared with

an increase in industrial employment in the West of 199 per cent, the report said.

► **Western Groups**—Under the committee's proposals, "Western" states include the following: North and South Dakota, Nebraska, Kansas, Oklahoma, Texas, Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, and California.

The Eastern group, referred to by the Committee as "the eleven states which focus the evil of centralization" are a selective group comprised of Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Ohio, Michigan, Illinois, Delaware, and Maryland. These are the states in which war contracts should be canceled first, according to the McCarran group.

► **VE-Day Changes**—Of the Western group, the Committee said that "immediately the European war ends, war production, particularly shipbuilding and aircraft, should be shifted to this area to the extent that is consistent with Navy plans." The McCarran group argues that the Eastern firms will have no advantage in advance conversion to commercial aircraft production.

"When the Western aircraft firms do convert to commercial production, they'll be able to come out with a newer model, making obsolete, or at least less preferable the earlier model of the Eastern manufacturers," a spokesman for the Committee said.

► **'Freezing' Proposal Explained**—In connection with its recommendation that government facilities in the eleven eastern states be indefinitely frozen for the benefit of the West, the Committee commented:

"In terms of the value of the war contract, both the taxpayers and the private investors have gotten their money out of the investments in war plants and facilities in these states. To secure the industrial gains made in other areas during the war, and to stabilize the industrial population in the states outside this area, the new Government-owned war plants and facilities in these eleven states must be frozen for an indefinite period."

In 1939, these eleven states accounted for 65 per cent of the Nation's manufacturers. Their share of the manufacturers cannot be increased without raising consequences for the other 37 states. The new plants and facilities must not be sold or leased except under specific conditions where the indus-

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of Army Air Force. Water-tightness necessary for operation in extreme temperatures is the Simmonds-Cassidy Push-Pull Control. Complete line with temperatures as low as minus 72°F. and as high as 160°F. gives efficient operation under wide variety of conditions.



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FIRST P-38 BUILT BY CONVAIR AT NASHVILLE:

First P-38 Lockheed Lightning fighter plane to be assembled at the Nashville Division of Convair's Lockheed plant under the plant's expanding production program is now in flight test. The plane, which is part of the 10-plane assistance project designed to ease facilities at the Lockheed plant of Lockheed, originators of the model, was assembled from parts shipped to Nashville from Lockheed.

tries buying or leasing the new plants will undertake to scrap their old plants to take advantage of the new."

Test Supercharger For Lightplanes

Device designed to increase horsepower from 30 to 60 percent with little increase in weight.

Possible solution to the problem resulting from the demands on light aircraft engine manufacturers for more horsepower at less cost and little addition in weight is being explored by the manufacturer of a mechanically-driven, positive displacement supercharger designed to increase horsepower from 30 to 60 percent with little increase in weight, but with an overall reduction in horsepower cost.

This would put the 55 to 125 hp engine equipped private plane into a more desirable class, moving it faster rate of climb, higher cruising speed and greater maneuverability. Attempts have been made to increase the horsepower of light aircraft engines by increasing engine speeds, necessitating reduction gears between the crankshaft and propeller and by similar methods. The results have contributed for the most part to additions to frontal area, weight, bulk and cost.

Engine Speed Not Increased —

Manufacturers of the Roots-type positive displacement compressor believe that the application of their device would eliminate these disadvantages to a large extent since engine speed would not be increased.

Being mechanically driven rather than exhaust driven, as in the case of turbo superchargers, this supercharger requires only a small cost for addition to regular models.

The Roots-type of positive displacement compressor was used for many years to supply large volumes of air to iron melting furnaces and for other industrial purposes requiring an inexpensive but reliable supply of air under pressure. Its makers believe it is well-suited for engines operating at variable speeds because of its ability to deliver air very nearly in proportion to its speed.

J. P. Stewart, assistant general manager of B-W Superchargers, Inc., believes a favorable outlet for the supercharger now seems to be the small and medium sized piston engine for private aircraft. These planes, he points out, have not followed military and transport craft in utilization of superchargers.

Vet Rehiring Plans

Canadian aircraft plants, overhaul and repair organizations and transportation lines are being urged by the Canadian Aircraft Industry Relations Committee to

place war veteran personnel managers on the job of hiring war veterans.

The committee which was organized early in the war, recommends that discharged servicemen be trained to do a down-to-earth rehabilitation job when the war veterans come home, expecting positive placement in the Canadian aircraft industry.

Watched In U. S.—Aircraft executives in the United States are watching the program with interest since the problem of veteran placement is already beginning to assume some proportions and in some cases is running into union security regulations.

United Aircraft Shipment up 10%

Shipments of aircraft, engines and propellers by United Aircraft Corp. increased 10 percent in the first nine months of this year over the 1943 period, while net income on constant stock before depreciation increased five percent.

The increase in shipments by the operating divisions, Pratt & Whitney, Hamilton Standard propellers, Chance Vought and Sikorsky, was made despite a substantial drop in shipments for the third quarter.

Two New Models—Frederick B. Bentzler, corporation chairman, reported that due to changes in schedules for military require-



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POUND SUPERFORTRESS . . . mighty monarch of the stratosphere. Cuts in flight on a clear belief, the B-29 in its first place ever built that combines tremendous size and tremendous carrying capacity with the speed of a fighter plane.



NAZI DUMMY PLANE PLANT PUT OUT OF BUSINESS:

Heavy bombing attacks by AAF Flying Fortress bombers put this "plane plant" out of business in March. When the Yanks captured Dijon they found

the factory wrecked. It had been devoted to manufacture of dummy planes for German airfields. Although crudely made, they were doctrine from air



What's new in hydraulics? While for this new book, "Increased Power and Controlled Flow by PESCO"

PESCO ELECTRO-HYDRAULIC POWER PACKAGE This new PESCO development makes possible the transmission of controlled hydraulic power wherever you can run a wire. A complete hydraulic system, compact, light in weight, it contains a reservoir, an electrically-driven pump, a pressure relief valve and pressure switch. Delivers pressures up to 3,000 p. s. i. Installed close to the hydraulic cylinder, it eliminates long runs of tubing and many spooling parts. PESCO Products Co., 11310 Euclid Avenue, Cleveland 4, Ohio (Division Borg-Warner).

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This little self-locking nut plate is typical of Solar's challenging work which, fifteen years ago, heeded aside tradition to give the world the first really safe method of venting dangerous supersonic gases—the Solar stainless steel exhaust manifold.

Two years ago there was a desperate need for self-locking nut plates for military plane production which would sustain high temperatures. Solar met the emergency with SOL-A-NUT... a stainless steel nut plate developed with Solar intensive on different principles of design and construction.



SOL-A-NUT is simplicity itself—*now that it is finalized!* But back of it are months of hard work and original thinking—of research and design—of material tests—made in use—in design and further tests.

It is not a simple matter to engineer new products, particularly those made of stainless steel and used where high temperatures prevail, or hot gases, acids and corrosion are encountered. This is the field in which Solar's experience and knowledge are at their best. Consult Solar on your problems. Address "Management".

SOLAR AIRCRAFT COMPANY SAN DIEGO 12, CALIF. DES MOINES 5, IA

ments and the introduction of two advanced models in the Pratt & Whitney Engine Division, shipments for the third quarter were \$181,884,203 compared with \$191,611,676 for the 1943 period. Total for nine months was \$551,593,348 against \$535,408,550 in 1943.

Net income for the nine months period was \$12,573,163 compared with \$11,302,323 for the same period in 1943.

OK Packaging Study

More than 300 aviation manufacturers are cooperating in the program for preservation and packaging of aeronautical equipment, working through the Aeronautical Chamber of Commerce which set up 17 subcommittees for the purpose of commenting and making recommendations on Army-Navy aeronautical specifications in this project.

The Working Committee of the Aeronautical Board, which is composed of the chiefs of the Army and Navy aeronautical services has commended the Chamber and the cooperating companies for "an outstanding service."

BAE Study Aided—At the suggestions of the ACCA, the Services, through the Working Committee, have asked the Society of Automotive Engineers to form a

subcommittee to study the technical requirements for preservation and packaging, the only problem confronting the Services in this program.

Prop Training School

The propeller training school at the Westcott, R. I., plant of Hamilton Standard Propellers has graduated more than 2,200 propeller technicians, recently turning out the 100th class for the Army Air Forces.

The school was enlarged from civilian instruction in May, 1945, to teach propeller operation, maintenance and servicing to every branch of the armed forces, with particular emphasis on AAF ground crews. Other students included men from various aircraft industries, civil service employees, and military and naval personnel from Great Britain, Canada, China, Brazil, Peru, Iceland, Nicaragua, Australia and Uruguay.

Short Course Given—The course is normally for four weeks, but special shorter courses of one or two weeks are given to representatives of the aircraft industry and civilian students of various kinds. The school operates to accommodate aviation firms who wish to send men for primary or refresher courses.

Fairchild Camera 9 Months Net Off

Net earnings for Fairchild Camera and Instrument Corp. during the nine-month period ended Sept. 30 last, after estimated taxes and subject to adjustment, was reported at \$615,178 as against \$977,439 for the same period last year. Directors declared a cash dividend of 50 cents a share, payable Dec. 31, 1944 to stock of record Dec. 15.

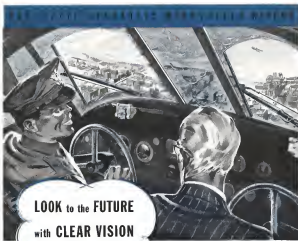
James S. Ogbury, president, and sales for the fourth quarter are expected to be modestly less than the average for the first three quarters of this year, but that comparison with the fourth quarter of 1943 will be poor because this latter quarter witnesses the greatest physical volume in the corporation's history, and prices this year are considerably lower. While the firm has several months work ahead in war orders, Ogbury said it was natural for new orders to be received in less volume than corresponding shipments and for some existing contracts to be reduced or canceled. The effect has been to reduce unfilled orders from a year ago.

Net earnings per share were reported at \$3.61 compared with \$4.29 for the previous period.



BARRACUDAS ON BRITISH ASSEMBLY LINE:

Interior views of aircraft plants in Britain are infrequent. This picture shows construction details and a general view in the assembly shop of partly-built Fairey Barracudas.



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AND COMPRESSORS - PRECISION PLATE AND ASSEMBLIES

THE AIR WAR

COMMENTARY

U. S. Air Crisis Develops in China As Jap Forces Swing Westward

Nipponese capture of "bomb Tokyo" bases and attempt to establish impenetrable line of defense in China brings war in that theater to highest pitch since 1938.

About mid-June as the Allies were pushing in from the Normandy beachheads in all directions, leading on strategic Japan in the Marianas, and carrying out the last B-29 mission from western China against the big steel works in Yawata, something else on the debit side of the ledger was taking place which for a long time at least may go far to offset these solid triumphs. The vital air base and rail center of Changsha (Hunan Province), after four unsuccessful attempts, was secured by heavily reinforced Jap troops, and was to fall a few days later.

Mr. Gen. Claire Chennault characterized this new drive as an attempt to establish an impenetrable line of defense in China, bringing the Chinese war to its greatest pitch since 1938. He declared that if the Japanese were successful in clearing the entire Canton-Hankow railway and building defensive positions on it, the Axis war could be prolonged for years (Aviation News, June 30). From all that has happened during the succeeding five months it is evident that Chennault, as usual, has his eye on the ball time.

► Jap Air Advance—To get the whole picture it is necessary to go back to last April, when Japan's first blow in the current offensive fell on Tang En-pao, one of Changsha's oldest generals, in northern Henan province. The objectives: (1) to close the 120-mile gap of the Peiping-Hankow railway (from Changchow to Shingchi), and (2) to extend Japan's outer line of defense from the Yellow River to the Yangtze. The campaign reached the first time the Japanese crossed the Yellow River in force since the Chinese blew up the dike in 1938 and sent the river flooding southward.

General Teng put up a good fight, but his tactical skill could not make up for the inadequate weapons of his arm, for the lack of air cover by ill-equipped units of the Chinese Air Force (the U. S. 14th had no bases in this area), and for the almost complete absence of fighter facilities. On the other hand, the Japs, despite a small force of 50,000 against 300,000 Chinese, had fleets of trucks, mobile canteen, whippet tanks and armored cars. Their prodigious mobility enabled them to cover 300 miles in less than three weeks. The speed of this advance last spring has been matched in the recent drive in the southern province of Kwangsi by Chennault's 14th, now a field marshal as a result of his earlier blunders in the fertile northern Honan province. Not even the Russian drive across eastern Poland or the American dash across France exceeded the speed of these two Jap thrusts.

► Area Near Chinese Reds—After the fall of Changchow (late April) and recovery of the missing stretch of roadbed (rails had been taken away and had to be brought in from other less useful railways), the Japs slashed out to the west in a drive hardly noticed at the time, capturing strategic Loyang some weeks later and striking out beyond Longhai into Tungchow, Shensi Province. Tungchow is at the edge of the Communist-controlled region, about 500 miles south of Nanking, headquarters of the Chinese 8th Route Army, and 50 miles east of Siam, marked on the maps as an Allied air base.

► These Chang Air Bases—Duckett part of the entire picture is the loss in rapid succession of the vital air bases in southern Hunan and Kwangsi provinces, used with such devastating effect by General Chennault's 14th Air Force, particularly built up there the early days of the Flying Tigers at a cost of hundreds of millions of American

dollars and thousands of millions of Chinese (and American) man-hours, with the hundreds of thousands of tons of gas and oil, bombs and bullets, spare parts and materials flown over the aerial Burma Road. Changsha is June, Hengyang in July, Loyang in August, Wuhsue and Tanchuk in September, and now Kweilin (pron. Gweye-lin) and Lashow (Lew-joh) in November. The sudden thrust west from Lashow, toward British (capturing Lashow) and the great railroads of Kwei-yang (pron. Gweye-yang) on the Burma Road, half way between Kiating and Chungking, isolates the remaining Kwangsi airfield at Yanning. It also threatens to block the flow of heavy guns and equipment for the Chinese armies even before they can start coming over the Lashow-Burma Road and the Indian-China pipeline for the U. S. 14th.

► Eastern China Cut Off—Besides this, China is now split in two, with the staging airfields east of the Hankow-Kanton railway completely cut off from receiving supplies. These include Kian and Suichow (Kiangsi Prov.), Lungtan and Kienow (Fukien Prov.), and Yunnan and Lashow (Chekiang Prov.). The latter was the base for which General Decedille and his flyers headed after their rout on the criss of Japan, and was planned to become eventually one of the chief of the "bomb Tokyo" bases in operation.

For the present use of these bases has had to be restricted, and the prospects of establishing a port as the Chang airfield supply line is admittedly more difficult. If the Japs can close the rail gap which now exists between Lashow and Nanning it will completely shut them out. In September, the supply line.

► Not About B-29 Bases—More serious still, the enemy possession of the string of Hunan-Kwangsi bases poses a very real threat to the Superfortress bases in North China. Defense of these vital bases, western prong of the great aerial pincer for strategic bombing of Jap war industries, has become more of a problem and one which will keep the Chinese in effort in China from its hitherto highly effective work, especially against Jap shipping. The air crisis in China may mean this for the near future the main strategic air blow against Japan, aircraft industry, etc., will have to come from the Pacific.

NAVY/AVIATION

Revived Interest in Aircrafts Puts Some Issues at New '44 Highs

Marked advances in a few cases registered with no actual change in company's physical properties or prospects, analysis of leading shares discloses.

Fluctuating stock quotations not only provide a gauge to the varying fortunes of industry but also afford a good measure of market valuations of separate companies under observation.

Recently, the aircrafts have been favored with revived investment interest and, in many instances, have gone on to record new peaks for the year and longer. In this process, stockholders have been liberally rewarded. Equally important, some tremendous changes in market valuations have occurred without the slightest change in the physical properties of the companies themselves.

Douglas—For example, Douglas was not long ago hit a new high for the year, representing a gain of about 25 points from the low of 1944. To a holder of 100 shares of Douglas, this meant an improvement of \$2,500. Translated marketwise, this also meant that the Douglas Aircraft Co. experienced an appreciation of more than \$18,000,000. Yet, there was virtually no change in the plant or property of the company itself. What happened was simply the evaluation by market speculators and investors that perhaps the outlook for the company was not so bad as first appeared and was deserving of higher prices.

AVIATION News has prepared the range in market valuations for twelve of the leading aircraft companies along with actual book valuations as of the last year-end together with a projection of estimated book values as of this coming year-end. The market valuations are of course based on the high and low quotations for the separate stocks. Book valuations as of the last year-end are taken directly from the balance sheets of the companies. Estimated book values for the 1944 year-end are premised on the belief that this year's earnings will be at least as good as that of last year with earn-

oak coverages given the trend as indicated by available reports.

Book Values Up — The accompanying table shows that with but few exceptions, aircraft book valuations of about a year ago are higher than the highest prices reached by the market prices at any time under review. It is also evident that using respected book valuations as of this coming year as a baseline, aircraft equities are generally selling at a decided discount. Of course, this has been a common phenomenon in recent years and was the obvious result of the market showing its apprehension for the aircraft industry's future. In fact, market deterioration developed to the point where prices fell below that of net working capital for many of the aircrafts. (AVIATION NEWS—Sept. 15, 1944.)

It is particularly noteworthy to see the substantial increment in market values—mostly occurring in a period of less than six months—with hardly any adjustments in the actual physical facilities themselves. For instance, Grumman's market valuation almost doubled during this period—going from \$4,500,000 to \$15,494,000. The company did not strike oil or its property nor did it realize any substantial overnight inventory profits. The explanation is simply in the increased outlook of the economy.

and industry as suddenly viewed by the composite market.

Study Concludes—It is also an interesting study in contrasts to observe how companies with almost like book valuations can have varying market valuations. For example, Gruenberg, with a book figure of almost \$13,000,000 at 90 high point enjoyed a market premium of more than \$3,500,000. On the other hand, Bell with a book valuation of almost \$13,000,000, at the very best in the market, sold at less than half that amount. Similarly, Martin and Lockheed, at their best prices, enjoyed the same market valuations—around \$25,000,000. Yet, Martin valued its equity at better than \$36,000,000 compared to around \$33,000,000 for Lockheed.

Wide Swings—It is important to realize that these wide swings in market prices by no means alter the basic or underlying position of the companies themselves. In periods of distress selling, market quotations may become demoralized resulting in ridiculously low quotations for equities. Yet, the companies represented may actually be prospering and strengthening their equity positions.

It is significant that companies like Bendix and United Aircraft stand out in that the market price of their equities has consistently been a multiple of their book valuations—contrary to the general industry trend. For example, at its high mark, United sold at almost twice its book figure and even at its lowest point was selling at a premium. The explanation is simple: both of these units have established relatively high investment standing based on consistent and diversified lines of production, has less to fear in the post-war period. United, as a leading producer of engines, is well fortified for the future and is already being bought by major aircraft manufacturers.

Market and Book Valuations Major Aircraft Companies

[illegible]

ADG for 1960-61, 1961-62

A2. *Journal of Health Politics, Policy and Law* 30

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- 2—**Air Transport** : calls for more intensified coverage than ever as our fastest-growing public carrier.
- 3—**Personal Aircraft** : calls for strong coverage of the key men who will sell and service planes, distribute parts and accessories, operate airports—the fixed-base operations, distributors and airport measures.

The functions of the industry are manufacturing, operation, maintenance and distribution.

Frequently misinterpreted as dreams, they are, in fact, fantasies rather than those mere divisions.

They are closely related and interdependent. So closely, in fact, that it is almost impossible to say where one stops and the other starts.

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TRANSPORT

CAB's Multiple Taxation Group Asks Levies to Aid Aviation

Committee, in two day discussion on Washington, lays ground-work for possible recommendations in report to Congress.

By DANIEL S. WENTZ II

Ground-work for a proposed tax system designed to aid in development of the air transport industry was laid at a meeting in Washington last week of CAB's Advisory Committee on multiple taxation of air carriers.

The two-day discussion under chairmanship of CAB member Oswald Ryan developed some basic principles from which the Board hopes to formulate a series of recommendations in compliance with Congress' request that CAB explore the problem and report by the end of this year.

Cities Effect of Taxation—Ryan characterized air transport as "not unique in being extremely sensitive to taxation, like any industry with a relatively narrow margin of operating profits, a small change

in the expense of doing business or in the amount of taxes may have a relatively heavy impact upon net profits."

The problem, he said, may be discussed in three aspects—legal, political, and economic. Legal theory varies from the position that airline taxation should parallel the principles developed for taxing railroads, to the view that the Federal government has exclusive control of the navigable air space over the U. S. and therefore enjoys complete jurisdiction over air commerce.

Politically, the requirement is for a system of governmental machinery which will not stunt the growth of air transport by indiscriminate taxation.

Control Method—From the eco-

nomics point of view, a method of tax control which will be discriminatory between large and small carriers and between carriers operating over different routes seems to be required.

Ryan also indicated that the tax question has important international hearings arising in part out of the prospect that domestic carriers may also become international operators. "If a nation over which an airline operates is permitted to tax the carrier, such a development would be a potential threat to international unity," he said.

Foreign Flag Operations—He indicated, among other possibilities, that by international convention, foreign-flag international air carriers might be exempt from taxation, or that the principle of exclusive jurisdiction for the nation under whose flag the international carrier operates might become the rule.

Although the committee did not attempt to formulate final recommendations to the Board, it was the consensus that the better solution to the question probably lay in some form of federal-state cooperation. Federal action was seen as a possible requirement for an equitable apportionment of property, income, gross receipts or capital stock of the airlines among the states for tax purposes.

Some members of the Committee



CAB AIRLINE TAX STUDY COMMITTEE MEETS:

Members of the Advisory Committee appointed by the Civil Aeronautics Board to assist in its study on Multiple Taxation of Air Carriers are shown above with CAB Member Oswald Ryan, Chairman of the Advisory Committee. Left to right are (front row) W. H. Wallace, Minnesota State Tax Commissioner, N. G. Lochard, treasurer, PCA, Joseph McGoldrick, controller, City of New York, Oswald Ryan, CAB; George Mitchell, CAB consultant in charge of the study, Mario Kostano, CAB consultant, Irvin R. Barnes, director, CAB Economic Bureau; (second row) George Watson, National Association of Aeronautics

Officers, Ray Blakes, president, National Association of Tax Administrators, L. M. Labadie, Bureau of the Budget, Carl Shoup, Columbia University, James W. Martin, University of Kentucky; (rear) Duane Pierce, California State Board of Equalization, Edward Logan, director of the budget, Pennsylvania, Professor C. R. Lovett, CAB consultant, Al Mooney, National Association of American Officers, Avon Culbert, vice-president, American Airlines, W. G. Hines, CAB consultant, C. M. Chapman, Wisconsin State Tax Commission, Ray Blough, Treasury Department; and Ronald Welch, CAB consultant.

Lockeed Offers 14-Place *Saturn* For Post-War Short Haul Use

New craft, designed for feeder operations, to have cruising speed over 200 mph., range 1,600 miles with eight passengers.

Lockheed Aircraft's bid for the commercial market embodied in the short-haul, high frequency airline in the *Saturn* 75, a high wing, all metal, low based monoplane carrying 14 passengers, a crew of two, baggage and cargo.

It is powered by two Continental-built Wright engines of nine-cylinder, air-cooled design, which develop 125 hp each. The *Saturn* has a cruising speed of over 200 mph and a top speed of 240 mph. Maximum range is 1,600 miles with eight passengers, crew and baggage.

Low Landing Speed—Take-off distance of the plane is 1050 feet and its low landing speed of 73 mph make it especially adaptable to small airports. *Saturn* has a rate of climb of 1250 feet per minute, its service ceiling is 18,000 feet, and it will maintain a 14,200 foot altitude on one of its two engines.

These performance figures are based on a 13,500 pounds gross

weight.

Robert E. Gross, Lockheed president in announcing the new airplane, said two feeder line opera-

tions had purchased *Saturn* subject to approval of their route applications by the Civil Aeronautics Board and that others were negotiating contracts.

Requirements—He pointed out that the requirements of the short-haul, high-frequency airline are difficult, calling for a sturdy, swift plane that will give high performance at low cost.

The *Saturn*, Gross said, is small



Details of Lockheed's Post-War Feeder Plane: Interior views show the standard version for 14 passengers and the design for corporate executives. The hinged nose cone is one feature for quick service.



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enough for the short-haul operation, and operates with sufficient economy to be self-supporting on relatively light payload. He sees it, too, as an ideal airplane for trucking operators through areas where traffic is sparse, or distances between cities are short. The plane, he said, will meet all Civil Aeronautics Regulations for transport aircraft.

Parts Interchangeable—An aspect of its economy lies in the interchangeability of its parts, including the dual wheels on the main landing gear, the horizontal and vertical tail surfaces, the dividers and rudders and the stabilizers and fin.

Passenger seats may be removed quickly and a movable bulkhead permits quick cargo conversion where conditions require. *Saturn* has a tricycle retractable landing gear, dual brake system and control surfaces designed for rapid and safe airport maneuverability.

Quick-Change Power Plants—Lockheed emphasized quick-change power plant units, accessibility of parts that require service and simplicity of the various units, all directed at quick maintenance.

The *Saturn* will be manufactured when military production permits. Gross said the company's volume of war work had increased in the face of setbacks elsewhere and that production of the peacetime plane would not be allowed to interfere with current output of the Lightning P-38, the Constellation, the Flying Fortress bomber, Boeing Flying Fortress built by Lockheed, and the new fighter type.

Revenue Mileage Up

Air carrier statistics prepared by Civil Aeronautics Board's Economic Bureau disclose that revenue passenger miles flown during August, 1944, represented a 45.97 percent increase over August, 1943. Similarly, mail and express revenue mileage figures were up 53.48 percent and 22.63 percent respectively.

For the twelve month period closed Aug. 31, 1944, the over-all revenue passenger load factor stood at 89.76 percent, compared with 85.64 percent for the previous year. The lines also completed 152,264,383 of 139,567,176 miles scheduled to let them for a performance factor of 95.12 percent. Average revenue passenger and mail loads showed an increase,

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Figure 1. A schematic diagram of the experimental design. The subjects were divided into two groups: the control group and the experimental group. The control group received a standard training program, while the experimental group received a modified training program. The subjects were then tested on a series of tasks, and their performance was compared between the two groups.

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► **Four Main Runways**—The plan projects four main runways built in accordance with prevailing winds, supplemented by three auxiliary strips. Lengths vary from 6,400 to 10,700 feet; width from 152 to 245 feet. Approach to the field are said to be over dunes and are built on areas

Of a total 1928 trade of \$96,793,888, air cargo potentials comprise some 30.7 percent or \$31,318,729 in value. The subcategory of diamonds creates a preponderance of U. S. exports over imports. Chief potential air cargo exports are textile manufactures and machines.

United Airlines has constructed the full-scale DC-6 or DC-6 cabin model shown above to experiment with more efficient galley arrangements to be built into new planes when they become available. The DC-4 galley, 60x25x80 inches, will be located aft; the DC-6 will have two units, each 50x26x80 inches, located midway in the cabin.



The LEA
COMPOUND
Toothpaste
Tooth Lotion
Tooth Cream




THE LEA MANUFACTURING CO.
WATERBURY 86, CONN.
*Drum, Buffing and Polishing . . . Manufacturers and Specialists in the Development of
Production Methods and Compositions*



HARRIS

A-N SHOCK MOUNTS

HARRIS A-N standard shock mounts are made in two types, steel and dural (non-magnetic) and conform to the Joint Army-Navy specifications AN-118 and drawing AN-8008.

They have been approved by AAI (Wright Field) and are used extensively by the Army, Navy and aircraft manufacturers.

Made in the full range of load ratings in all sizes and sizes and types.

Write or write for further details

HARRIS
PRODUCTS COMPANY
CLEVELAND 4, OHIO



EXPERIMENTAL UHF STATION:

Shown above is an experimental 20 ft. tower at Indianapolis, used by engineers of the Civil Aeronautics Administration's Technical Development Section to study ultra high frequency radio range equipment. Circular four-hole-section is a cone-shaped, used to direct reflected ground radiation. Indianapolis studies show most practical UHF range towers are 20 to 30 ft. high, with waterpipes 20 to 42 ft. in diameter.

AA 9 Months' Net Put at \$3,991,688

Net earnings of American Airlines, Inc., for nine months ending Sept. 30 were \$3,991,688, company reports, a drop from the \$4,353,199 net for the 1944 quarter equals \$4.61 per common share outstanding, an against \$11.2 a year ago.

While earnings for this year were after provision for Federal income and surtax, no allowance was made for income profits taxes. This was considered unnecessary in view of the company's earnings so far. Should last quarter earnings boost the annual profit into the common profits bracket, it is estimated that earnings per share for the nine months would be reduced to \$3.83.

Operating figures up — While net income was down, operating figures increased for the first three quarters. Revenue, minus taxes reached \$4,460,638, revenue passenger miles 406,580,317. No charges to the government

for war services performed are included in the company's report as they were undertaken at cost and expenses charged direct to the Government.

New Feeder Talks

A new regional feeder line proposed, designed to handle applications for new routes in Virginia, North and South Carolina, Georgia, Alabama, and Tennessee which have been crowding the Civil Aeronautics Board's docket, was announced last week by Chief Examiner C. Edward Leasure. A preliminary compilation lists 23 applicants who have been requested to appear at a preliminary conference scheduled for Jan. 22.

Leasure emphasized that the area covered by the lines requested does not constitute a closed boundary for the case, and the problem of scope undoubtedly will come up at the preliminary conference.

Operating airlines who have applications in the suggested area include PCA, Eastern Air Lines, and National Airlines. Examiners have not yet been assigned to the case.

CAA Devices to Cut Delays at Airport

War-developed improvements will speed plane landings and takeoffs, provide all-weather collision-proof service, Giza A. Gilbert tells Clinic.

Civil Aeronautics Administration's extensive improvements under way to provide more effective traffic control service, involving approach control, automatic surveillance systems and VHF two-way radio and navigation facilities represent only an interim program. After the war, radar developments will make possible all-weather, collision-proof air service.

Ultimate development of a small collision warning device approximating a present-day compact radio receiver is forecast by Giza A. Gilbert, chief of CAA's Air Traffic Control Division. Actually, although authorities will not confirm the fact because of wartime secrecy, it is believed that some automatic collision warning device of the type forecast will be on the market in less than a year after the war.

Climate Yield of Device—Gilbert told the National Aviation Clinic that the device's indicator will be about the size of an airplane bottom. Cost will compare with other equipment used by instrument flight today, but because of this economic restriction the instrument probably will indicate position of planes only in the front half-section of the plane, with an effective radius of about 15 miles.

Position of each craft in the 15-mile sector should be shown on a screen similar to war radar.

"Collision warning devices in aircraft, automatic aircraft position reporting and traffic control instruction facilities would result in a revolutionary change in air traffic control practice," Gilbert said. With such equipment on board, a pilot desiring to make a right subject to instrument flight rules, once he had received a green signal from the control tower permitting take-off, would simply follow the instructions as to stop, go, altitude-change, shown on his traffic control indicator and would refer to his collision warning indicator as necessary to insure that adequate separation was maintained between his plane and others near by.

Cuts Delay and Congestion—

With such equipment in use, emphasis of air traffic control would be shifted from prevention of collisions between individual aircraft to regulation of the flow of air traffic to minimize delay and congestion.

Development of a secondary screen in airport traffic control towers to permit controllers to visualize exact position of each plane within 25 miles would be the next step.

One screen, Gilbert believes, would be necessary for the horizontal cross section of the traffic and the other screen would show a vertical cross section along the instrument landing system. Combination of these two screens on one, for a three-dimensional presentation, would be desirable.

Simultaneous Landings and Takeoffs — Ideally designed airports should permit planes to land and take off simultaneously, further speeding traffic. With such planning of runways and airports, plus changes in landing systems, ground traffic control and take-off facilities, it should be possible to make landings during instrument weather conditions at intervals of 50 seconds.

Where several airports are in the

same area, these respective traffic patterns must not conflict and navigational facilities serving them must be arranged so that each may dispatch and land planes simultaneously.

CAB SCHEDULE

Nov. 21, Thursday day for the Florida case
Nov. 22, Friday day for the Florida case
Nov. 23, Saturday day for the Florida case
Nov. 24, Sunday day for the Florida case
Nov. 25, Monday day for the Florida case
Nov. 26, Tuesday day for the Florida case
Nov. 27, Wednesday day for the Florida case
Nov. 28, Thursday day for the Florida case
Nov. 29, Friday day for the Florida case
Nov. 30, Saturday day for the Florida case
Dec. 1, Sunday day for the Florida case
Dec. 2, Monday day for the Florida case
Dec. 3, Tuesday day for the Florida case
Dec. 4, Wednesday day for the Florida case
Dec. 5, Thursday day for the Florida case
Dec. 6, Friday day for the Florida case
Dec. 7, Saturday day for the Florida case
Dec. 8, Sunday day for the Florida case
Dec. 9, Monday day for the Florida case
Dec. 10, Tuesday day for the Florida case
Dec. 11, Wednesday day for the Florida case
Dec. 12, Thursday day for the Florida case
Dec. 13, Friday day for the Florida case
Dec. 14, Saturday day for the Florida case
Dec. 15, Sunday day for the Florida case
Dec. 16, Monday day for the Florida case
Dec. 17, Tuesday day for the Florida case
Dec. 18, Wednesday day for the Florida case
Dec. 19, Thursday day for the Florida case
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Dec. 27, Friday day for the Florida case
Dec. 28, Saturday day for the Florida case
Dec. 29, Sunday day for the Florida case
Dec. 30, Monday day for the Florida case
Dec. 31, Tuesday day for the Florida case

Get a sound knowledge of climatology

from this concise, practical book

Here is a fundamental treatment of the principles of climatology, the study of the climate of the earth. Physical causes and variables are treated and how they have changed with special attention being paid to changes in the distribution of climate types. How climate has changed in the past is given and the future is predicted on the basis of the present state of knowledge of the atmosphere, the sun, and the earth.



CLIMATOLOGY

By BERNARD DUKEWITZ and JAMES M. AUSTIN

Associate Professors of Meteorology,

Northwestern University of Chicago

This first part of this book deals with the various fundamental elements of climate. It covers the physical causes of climate, the distribution of climate types, the changes in climate, and the future of climate. It is a concise, practical book, and is suitable for use in the upper elementary or college courses.

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Cause Uncertain In TWA Plane Crash

Definite reason for disintegration of craft not ascertained in coast hearings.

Public hearing testimony only indicated—failed to prove—possible reasons why TWA's trip 8, San Francisco to Los Angeles, disintegrated at 10,000 feet Nov. 4, bringing death to passengers and crew.

Detailed laboratory tests may be required to establish as better than speculation these guesses:

• A destructive force may have built up in a sharp dive and violent pull-out, possibly to avoid collision with another airplane in the focus of an isolated thunderhead which had just reached peak of development.

• Turbulence of unmeasured violence may have started destruction in the thunderhead, the presence of which had not been forecast and which the pilot, Capt. Alfred Thomas Bietel, may not have seen while climbing through adjacent clouds.

• There may have been a mid-air collision with another airplane, the second plane escaping with minor

damage and its pilot failing to report the fatal incident.

While the airframe, a DC-3, virtually "undamaged," expert testimony seemed to establish that there was no explosion. No fire developed until the wreckage struck the ground.

Investigation of all airplanes known to have been in the vicinity at the time failed to produce any evidence of collision. However, military witnesses testified that military transports had been subject to "pushing" being taken off them at night by P-81 Black Widow's using radar in the vicinity of Fresno, claim to the south of the accident.

• **Colloids Theory Checked**—Laboratory tests of glass-like particles found on some metal parts possibly will be ordered to check out the colloids possibility. CAA's

Chairman, of the wreck examination, said that Col. H. W. Harrison of Santa Monica, said the material possibly could have been glass from the DC-3 cabin flooring.

Definitely due for testing, to attempt to identify reproduction of the airframe's wing and other parts.

It showed gradual uncontrolled climb to 10,000 feet, level flight for an extended period, and then sharp, possibly vertical, descent to 6,500 feet with the trace continuing down to 7,500 feet, where the wreckage was found.

• **Crash Beard**—Edward Miner, TWA superintendent of meteorology, could only interpret the wind indications that at the point of descent began, there was "some very sharp impact."

Sitting on a crash board were William K. Andrews, Chief of the CAB investigation section; W. F. Keady, CAB aircraft specialist; George French, CAB meteorologist; Ralph Reed, CAA's Sixth Region Chief Investigator, and Frank McKelvey, Sixth Region investigator.

• **TWA-COA Air Lines** expects that its New York-Toronto service operated during October with a passenger load factor of 90.1 percent. Of 1,076 seats available, 1,075 were used. The company also claims a non-stop, 10-day-a-week service between Montreal and Great Britain of 10 hours and 33 minutes enroute.

The plane setting the record, a Lockheed L-1049, flew 8,000 pounds of mail and 1,006 pounds of cargo, and bettered the previous mark by one hour and one minute.

SHORTLINES

• The Seattle-Tampa Port Commission has filed a brief with the Civil Aeronautics Board in the Hawaiian Case, strongly recommending that Northwest Airlines' application for a Seattle-Honolulu route be approved.

The Pacific Northwest, the Commission notes, has been relegated to a position of inferiority on the matter of water transportation, and is determined to prevent similar discrimination in air transport.

Malcolm S. Thompson, Co. 1, a membership operator, is the only other applicant for a route between Hawaii and the Pacific Northwest.

• **United Air Lines'** revenue passenger miles in the third quarter of 1944 totaled 130,793,364, an increase of 38 percent over the same period last year.

Mail and express ton miles were \$276,328 and 1,113,283 respectively, increases of 23 and 3 percent over 1943's figures.

United's fleet of 100 aircraft now has a plane scheduled in 15 hours, 20 minutes daily, compared with eight and one-half hours daily in 1943.

The first nine months of 1944 represent new passenger, mail and express records, President W. A. Patterson said.

• **City of Zurich, Switzerland**, has proposed plans for a new airport, located on the edge of the city, covering an area of 329 acres. The field is to have four runways, one equipped for instrument landings and will withstand conditions of a estimated between 65 and 78 million tons and construction is expected to take three and one-half years.

• **PCA's October** passenger total was \$1,890, second highest monthly record in the company's history and represents an increase of 10 percent over the same month last year.

Mail and express figures were respectively 25 and 12 percent greater than in October, 1943. An increase of 33 percent recently returned DC-3's is gratifying in company shops at Washington, and the plane will likely be seen about the first of next year.

• **Colonial Airlines New York-Miami** service, operated with three DC-3's, carried 14,422 passengers during October. The three planes operate two round trips daily September 1944 and \$1.20 per seat for 1945.

• **Eastern Air Lines'** net profit for the nine months ended Sept. 30 dropped to \$71,881 from \$23,481 earned in the same period in 1943.

In terms of per share earnings, those figures are equivalent to \$1.22 per share for 1944 and \$1.20 per share for 1945.

• **Atlantic-Western Airlines**, Inc., has announced a charter service operating out of Richmond to Washington, New York, Atlanta, and other points. Capt. V. D. Lowndes is president of the newly-organized corporation.

Women's Post-War Air Market Studied

Jeanele Cochran says women airlines over 21 exceed men by \$50,000.

A growing realization of the mutual importance of the mass market represented by American women is noticeable in the air transport industry and in one or two progressive air schools which plan special courses for women only.

• **Subsidiarity of lightplanes** so far have given less evidence that they approximate this sales possibility to increase production and cut costs and prices.

• **Impressive figures** on the economic value of women in marketing were read to the National Aviation Clinic by Miss Jeanele Cochran, probably the outstanding minority for more aviation service by women.

• **Jeanele Cochran**, probably the outstanding minority for more aviation service by women, said that the women team to fly the family plane there just isn't going to be any family plane. The so-called four seat is the most important development factor in any purchase and the larger the purchase the more important and the less likely she becomes.

• **Leslie Neville**, editor of Aviation, told the Clinic that "until the women team to fly the family plane there just isn't going to be any family plane. The so-called four seat is the most important development factor in any purchase and the larger the purchase the more important and the less likely she becomes."

• **Women** are likely to nearly 80 percent of all aviation left by men and to two-thirds of those left by women.

• **Women** control 68 percent of the nation's buying.

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of most of the nation's money, but who have not flown.

• **Confirms**—Women have no more fear than men in any respect, and perhaps less in relation to flying, but they have believed the widely circulated contention that aviation is a man's game, and aviation so far has failed to furnish the necessities of travel which women need.

When the airlines and private operators make possibly a high percentage of trip commissions in all weather, because of unproved navigation aids, for example, women will no longer hesitate for fear of being stranded.

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Continue the Clinic

Amongst the Second Annual National Aviation Clinic closed hardly more than a week ago its success as an open forum and safety valve is assured.

It has already ripped away some of the traditional clamminess which has always divided the airlines, private flyers, fixed base operators, federal, state, and municipal officials, manufacturers, educators and airport managers.

No other gathering contributes so much to understanding and tolerance. Representatives from every aviation activity now sit down together and debate rather than carry on their name calling in the aviation press and the newspapers.

From a long-term view, it may be fortunate that uncontrolled discussion over the Lea Bill broke out at last year's first clinic. After a year to meditate over the rumors and which one air bill after another die on Capitol Hill, maybe the family has learned that none of its members can put over single-handed a job that involves the whole group. If some of this spirit of give and take has been absorbed, this baby of an aviation industry so overgrown for its age may be showing encouraging signs of maturity and constructive public service.

Moving spirits of the clinic, the National Aeronautic Association and the diligent citizens of Oklahoma City, are worthy of unstinted praise for bringing this new aviation institution into being.

Only superlatives describe Oklahoma City's hospitality and efficiency, and the completeness of arrangements and organization. They would place the community at the top in any all-aviation poll to name the city which has done the most for aviation in the past year. The clinic should be permanent, and it belongs only in Oklahoma City.

Progress on Airworthiness

AIRBORNE in the International Civil Aviation Conference has been progress of the technical committees which resulted, among other action, in adoption and discussion of a massive 110-page document outlining airworthiness minimum requirements to set effective safety standards for civil aircraft operating in international navigation and commerce.

The easily read draft, free of ambiguities, was prepared by the Civil Aeronautics Administration's engineering staff under the leadership of Edward P. Warner, vice chairman of the Civil Aeronautics Board.

This group, whose members on the Aircraft Airworthiness Subcommittee at the conference included Charles F. Dwyer, P. R. Russell, representing the aircraft industry, A. A. Volzreck, Charles F. Dwyer, Paul Spies, and Dr. Warner, worked assiduously day and night for weeks before the opening of the Chicago sessions. The document resulting was the only such draft submitted at the conference and it was adopted immediately for study.

The draft, of major interest to airframe and power plant manufacturers, covers proposed airworthiness requirements for aircraft, engines, propellers and equipment.

As to issuance and validity of airworthiness certificates, it is similar to regulations proposed by the International Commission for Air Navigation in 1938. But the U. S. staff set new precedents in establishing quantitative operating limitations for aircraft airworthiness requirements.

It recommends specific requirements covering strength, performance, and flight characteristics for four categories: normal, transport, training and acrobatic. The ICAN regulations are specific only for the normal category. For transports, airplane performance is related to the airports and terrain on each route to be flown.

Furthermore, the ICAN contains practically no requirements covering airworthiness of miscellaneous equipment items such as wheels, brakes, skis, floats, lights, flares, safety belts, which are covered by the new draft with specified quantitative tests. For the first time, when such regulations go into effect, such items can be installed on foreign aircraft with the assurance that they will meet requirements by the home government without red tape. Glider and rotor-plane airworthiness requirements will be proposed later.

The entire technical staff of CAA and the CAB vice chairman, by their labors prior and during the conference, have advanced significantly the cause of aircraft safety and have made a significant contribution to U. S. leadership in formulating an international code of airworthiness which will come ultimately from an International Airworthiness Council.

ROBERT H. WOOD

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